PRECISION MICROPOWER SHUNT VOLTAGE REFERENCE

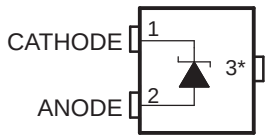
FEATURES

- **Fixed Output Voltages of 2.048 V, 2.5 V, 3 V, 4.096 V, 5 V, 8.192 V, and 10 V**
- **Tight Output Tolerances and Low Temperature Coefficient**
  - **Max 0.1%, 100 ppm/°C – A Grade**
  - **Max 0.2%, 100 ppm/°C – B Grade**
  - **Max 0.5%, 100 ppm/°C – C Grade**
  - **Max 1.0%, 150 ppm/°C – D Grade**
- **Low Output Noise…35 μV_{RMS} Typ**
- **Wide Operating Current Range…45 µA Typ to 15 mA**
- **Stable With All Capacitive Loads; No Output Capacitor Required**
- **Available in Extended Temperature Range…–40°C to 125°C**

APPLICATIONS

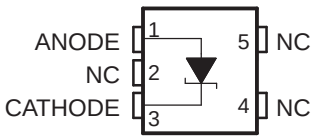
- **Data-Acquisition Systems**
- **Power Supplies and Power-Supply Monitors**
- **Instrumentation and Test Equipment**
- **Process Controls**
- **Precision Audio**
- **Automotive Electronics**
- **Energy Management**
- **Battery-Powered Equipment**

DBZ (SOT-23) PACKAGE
(TOP VIEW)



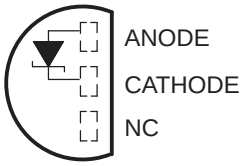
* Pin 3 is attached to substrate and must be connected to ANODE or left open.

DCK (SC-70) PACKAGE
(TOP VIEW)



NC – No internal connection

LP (TO-92/TO-226) PACKAGE
(TOP VIEW)



NC – No internal connection

DESCRIPTION/ORDERING INFORMATION

The LM4040 series of shunt voltage references are versatile, easy-to-use references that cater to a vast array of applications. The 2-pin fixed-output device requires no external capacitors for operation and is stable with all capacitive loads. Additionally, the reference offers low dynamic impedance, low noise, and low temperature coefficient to ensure a stable output voltage over a wide range of operating currents and temperatures. The LM4040 uses fuse and Zener-zap reverse breakdown voltage trim during wafer sort to offer four output voltage tolerances, ranging from 0.1% (max) for the A grade to 1% (max) for the D grade. Thus, a great deal of flexibility is offered to designers in choosing the best cost-to-performance ratio for their applications.

Packaged in space-saving SC-70 and SOT-23-3 packages and requiring a minimum current of 45 µA (typ), the LM4040 also is ideal for portable applications. The LM4040xI is characterized for operation over an ambient temperature range of –40°C to 85°C. The LM4040xQ is characterized for operation over an ambient temperature range of –40°C to 125°C.

Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

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ORDERING INFORMATION(1)

T_A	DEVICE GRADE	V_{KA}	PACKAGE(2)		ORDERABLE PART NUMBER	TOP-SIDE MARKING(3)
–40°C to 85°C	A grade: 0.1% initial accuracy and 100 ppm/°C temperature coefficient	2.048 V	SC-70 (DCK)	Reel of 3000	LM4040A20IDCKR	MS_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040A20IDBZR	4MC_
				Reel of 250	LM4040A20IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040A20ILP	PREVIEW
				Reel of 2000	LM4040A20ILPR	
		2.5 V	SC-70 (DCK)	Reel of 3000	LM4040A25IDCKR	P2_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040A25IDBZR	4NG_
				Reel of 250	LM4040A25IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040A25ILP	PREVIEW
				Reel of 2000	LM4040A25ILPR	
		3 V	SC-70 (DCK)	Reel of 3000	LM4040A30IDCKR	P9_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040A30IDBZR	4M6_
				Reel of 250	LM4040A30IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040A30ILP	PREVIEW
				Reel of 2000	LM4040A30ILPR	
		4.096 V	SC-70 (DCK)	Reel of 3000	LM4040A41IDCKR	P4_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040A41IDBZR	4M2_
				Reel of 250	LM4040A41IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040A41ILP	PREVIEW
				Reel of 2000	LM4040A41ILPR	
		5 V	SC-70 (DCK)	Reel of 3000	LM4040A50IDCKR	N5_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040A50IDBZR	4NA_
				Reel of 250	LM4040A50IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040A50ILP	PREVIEW
				Reel of 2000	LM4040A50ILPR	
		8.192 V	SC-70 (DCK)	Reel of 3000	LM4040A82IDCKR	PD_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040A82IDBZR	4NL_
				Reel of 250	LM4040A82IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040A82ILP	PREVIEW
				Reel of 2000	LM4040A82ILPR	
		10 V	SC-70 (DCK)	Reel of 3000	LM4040A10IDCKR	PH_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040A10IDBZR	4NQ_
				Reel of 250	LM4040A10IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040A10ILP	PREVIEW
				Reel of 2000	LM4040A10ILPR	

(1) For the most current package and ordering information, see the Package Option Addendum at the end of this document, or see the TI web site at www.ti.com.
(2) Package drawings, thermal data, and symbolization are available at www.ti.com/packaging.
(3) DBZ/DCK: The actual top-side marking has one additional character that designates the wafer fab/assembly site.

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ORDERING INFORMATION (continued)

T_A	DEVICE GRADE	V_{KA}	PACKAGE[2]		ORDERABLE PART NUMBER	TOP-SIDE MARKING[3]
–40°C to 85°C	B grade: 0.2% initial accuracy and 100 ppm/°C temperature coefficient	2.048 V	SC-70 (DCK)	Reel of 3000	LM4040B20IDCKR	MT_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040B20IDBZR	4MD_
				Reel of 250	LM4040B20IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040B20ILP	PREVIEW
				Reel of 2000	LM4040B20ILPR	
		2.5 V	SC-70 (DCK)	Reel of 3000	LM4040B25IDCKR	P3_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040B25IDBZR	4NH_
				Reel of 250	LM4040B25IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040B25ILP	PREVIEW
				Reel of 2000	LM4040B25ILPR	
		3 V	SC-70 (DCK)	Reel of 3000	LM4040B30IDCKR	PA_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040B30IDBZR	4M7_
				Reel of 250	LM4040B30IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040B30ILP	PREVIEW
				Reel of 2000	LM4040B30ILPR	
		4.096 V	SC-70 (DCK)	Reel of 3000	LM4040B41IDCKR	P5_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040B41IDBZR	4M3_
				Reel of 250	LM4040B41IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040B41ILP	PREVIEW
				Reel of 2000	LM4040B41ILPR	
		5 V	SC-70 (DCK)	Reel of 3000	LM4040B50IDCKR	MX_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040B50IDBZR	4NB_
				Reel of 250	LM4040B50IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040B50ILP	PREVIEW
				Reel of 2000	LM4040B50ILPR	
		8.192 V	SC-70 (DCK)	Reel of 3000	LM4040B82IDCKR	PE_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040B82IDBZR	4NM_
				Reel of 250	LM4040B82IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040B82ILP	PREVIEW
				Reel of 2000	LM4040B82ILPR	
		10 V	SC-70 (DCK)	Reel of 3000	LM4040B10IDCKR	PJ_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040B10IDBZR	4NR_
				Reel of 250	LM4040B10IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040B10ILP	PREVIEW
				Reel of 2000	LM4040B10ILPR	

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ORDERING INFORMATION (continued)

T_A	DEVICE GRADE	V_{KA}	PACKAGE[2]		ORDERABLE PART NUMBER	TOP-SIDE MARKING[3]
–40°C to 85°C	C grade: 0.5% initial accuracy and 100 ppm/°C temperature coefficient	2.048 V	SC-70 (DCK)	Reel of 3000	LM4040C20IDCKR	MV_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040C20IDBZR	4MQ_
				Reel of 250	LM4040C20IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040C20ILP	PREVIEW
				Reel of 2000	LM4040C20ILPR	
		2.5 V	SC-70 (DCK)	Reel of 3000	LM4040C25IDCKR	MU_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040C25IDBZR	4MU_
				Reel of 250	LM4040C25IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040C25ILP	NFC25I
				Reel of 2000	LM4040C25ILPR	
		3 V	SC-70 (DCK)	Reel of 3000	LM4040C30IDCKR	PB_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040C30IDBZR	4M8_
				Reel of 250	LM4040C30IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040C30ILP	PREVIEW
				Reel of 2000	LM4040C30ILPR	
		4.096 V	SC-70 (DCK)	Reel of 3000	LM4040C41IDCKR	P6_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040C41IDBZR	4M4_
				Reel of 250	LM4040C41IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040C41ILP	PREVIEW
				Reel of 2000	LM4040C41ILPR	
		5 V	SC-70 (DCK)	Reel of 3000	LM4040C50IDCKR	MZ_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040C50IDBZR	4NC_
				Reel of 250	LM4040C50IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040C50ILP	PREVIEW
				Reel of 2000	LM4040C50ILPR	
		8.192 V	SC-70 (DCK)	Reel of 3000	LM4040C82IDCKR	PF_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040C82IDBZR	4NN_
				Reel of 250	LM4040C82IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040C82ILP	PREVIEW
				Reel of 2000	LM4040C82ILPR	
		10 V	SC-70 (DCK)	Reel of 3000	LM4040C10IDCKR	PK_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040C10IDBZR	4NS_
				Reel of 250	LM4040C10IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040C10ILP	NFC10I
				Reel of 2000	LM4040C10ILPR	

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ORDERING INFORMATION (continued)

T_A	DEVICE GRADE	V_{KA}	PACKAGE[2]		ORDERABLE PART NUMBER	TOP-SIDE MARKING[3]
–40°C to 85°C	D grade: 1.0% initial accuracy and 150 ppm/°C temperature coefficient	2.048 V	SC-70 (DCK)	Reel of 3000	LM4040D20IDCKR	MW_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040D20IDBZR	4MV_
				Reel of 250	LM4040D20IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040D20ILP	PREVIEW
				Reel of 2000	LM4040D20ILPR	
		2.5 V	SC-70 (DCK)	Reel of 3000	LM4040D25IDCKR	ME_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040D25IDBZR	4ME_
				Reel of 250	LM4040D25IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040D25ILP	NFD25I
				Reel of 2000	LM4040D25ILPR	
		3 V	SC-70 (DCK)	Reel of 3000	LM4040D30IDCKR	PC_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040D30IDBZR	4M9_
				Reel of 250	LM4040D30IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040D30ILP	PREVIEW
				Reel of 2000	LM4040D30ILPR	
		4.096 V	SC-70 (DCK)	Reel of 3000	LM4040D41IDCKR	P7_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040D41IDBZR	4M5_
				Reel of 250	LM4040D41IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040D41ILP	PREVIEW
				Reel of 2000	LM4040D41ILPR	
		5 V	SC-70 (DCK)	Reel of 3000	LM4040D50IDCKR	M4_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040D50IDBZR	4ND_
				Reel of 250	LM4040D50IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040D50ILP	PREVIEW
				Reel of 2000	LM4040D50ILPR	
		8.192 V	SC-70 (DCK)	Reel of 3000	LM4040D82IDCKR	PG_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040D82IDBZR	4NP_
				Reel of 250	LM4040D82IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040D82ILP	PREVIEW
				Reel of 2000	LM4040D82ILPR	
		10 V	SC-70 (DCK)	Reel of 3000	LM4040D10IDCKR	PL_
			SOT-23-3 (DBZ)	Reel of 3000	LM4040D10IDBZR	4NT_
				Reel of 250	LM4040D10IDBZT	
			TO-92/TO-226 (LP)	Bulk of 1000	LM4040D10ILP	NFD10I
				Reel of 2000	LM4040D10ILPR	

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ORDERING INFORMATION (continued)

T_A	DEVICE GRADE	V_{KA}	PACKAGE[2]		ORDERABLE PART NUMBER	TOP-SIDE MARKING[3]
–40°C to 125°C	C grade: 0.5% initial accuracy and 100 ppm/°C temperature coefficient	2.048 V	SOT-23-3 (DBZ)	Reel of 3000	LM4040C20QDBZR	4MW_
				Reel of 250	LM4040C20QDBZT	
		2.5 V		Reel of 3000	LM4040C25QDBZR	4MA_
				Reel of 250	LM4040C25QDBZT	
		3 V		Reel of 3000	LM4040C30QDBZR	4NJ_
				Reel of 250	LM4040C30QDBZT	
		5 V		Reel of 3000	LM4040C50QDBZR	4NE_
				Reel of 250	LM4040C50QDBZT	
	D grade: 1.0% initial accuracy and 150 ppm/°C temperature coefficient	2.048 V	SOT-23-3 (DBZ)	Reel of 3000	LM4040D20QDBZR	4MY_
				Reel of 250	LM4040D20QDBZT	
		2.5 V		Reel of 3000	LM4040D25QDBZR	4MB_
				Reel of 250	LM4040D25QDBZT	
		3 V		Reel of 3000	LM4040D30QDBZR	4NK_
				Reel of 250	LM4040D30QDBZT	
		5 V		Reel of 3000	LM4040D50QDBZR	4NF_
				Reel of 250	LM4040D50QDBZT	

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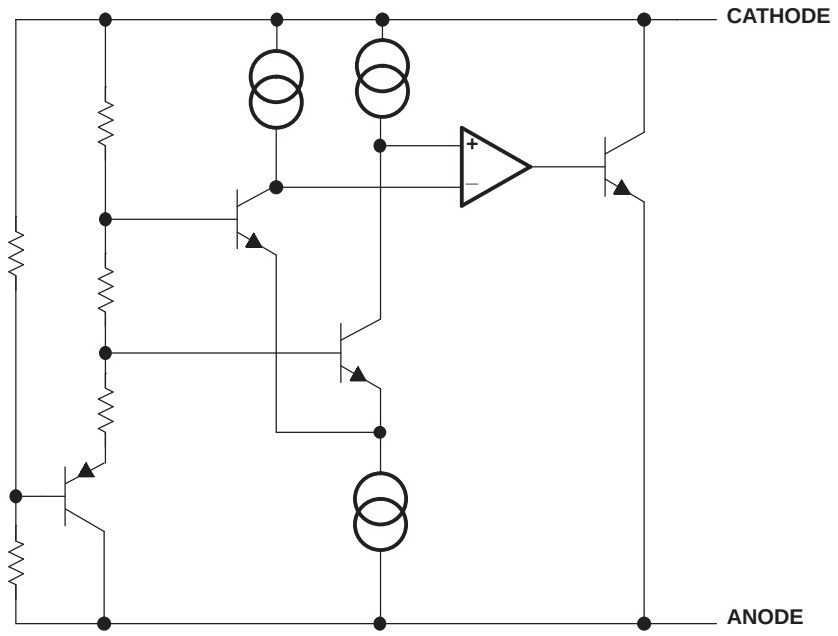
FUNCTIONAL BLOCK DIAGRAM



Absolute Maximum Ratings(1)

over free-air temperature range (unless otherwise noted)

			MIN	MAX	UNIT
I_Z	Continuous cathode current		–10	25	mA
θ_{JA}	Package thermal impedance(2)(3)	DBZ package		206	°C/W
		DCK package		252	
		LP package		156	
T_J	Operating virtual junction temperature			150	°C
T_{stg}	Storage temperature range		–65	150	°C

(1) Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.
(2) Maximum power dissipation is a function of $T_J(max)$, θ_{JA}, and T_A. The maximum allowable power dissipation at any allowable ambient temperature is $P_D = (T_J(max) – T_A)/\theta_{JA}$. Operating at the absolute maximum T_J of 150°C can affect reliability.
(3) The package thermal impedance is calculated in accordance with JESD 51-7.

Recommended Operating Conditions

			MIN	MAX	UNIT
I_Z	Cathode current		(1)	15	mA
T_A	Free-air temperature	LM4040xxxI	–40	85	°C
		LM4040xxxQ	–40	125	

(1) See parametric tables

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LM4040x20I Electrical Characteristics

at industrial temperature range, full-range T_A = –40°C to 85°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	T_A	LM4040A20I			LM4040B20I			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
V_Z	Reverse breakdown voltage	I_Z = 100 µA	25°C		2.048			2.048		V
ΔV_Z	Reverse breakdown voltage tolerance	I_Z = 100 µA	25°C	–2		2	–4.1		4.1	mV
			Full range	–15		15	–17		17	
$I_{Z,min}$	Minimum cathode current		25°C		45	75		45	75	µA
			Full range			80			80	
α_{VZ}	Average temperature coefficient of reverse breakdown voltage	I_Z = 10 mA	25°C		±20			±20		ppm/°C
		I_Z = 1 mA	25°C		±15			±15		
			Full range			±100			±100	
		I_Z = 100 µA	25°C		±15			±15		
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse breakdown voltage change with cathode current change	$I_{Z,min} < I_Z < 1$ mA	25°C		0.3	0.8		0.3	0.8	mV
			Full range			1			1	
		1 mA < I_Z < 15 mA	25°C		2.5	6		2.5	6	
			Full range			8			8	
Z_Z	Reverse dynamic impedance	I_Z = 1 mA, f = 120 Hz, I_{AC} = 0.1 I_Z	25°C		0.3	0.8		0.3	0.8	Ω
e_N	Wideband noise	I_Z = 100 µA, 10 Hz ≤ f ≤ 10 kHz	25°C		35			35		μV_{RMS}
	Long-term stability of reverse breakdown voltage	t = 1000 h, T_A = 25°C ± 0.1°C, I_Z = 100 µA			120			120		ppm
V_{HYST}	Thermal hysteresis (1)	ΔT_A = –40°C to 125°C			0.08			0.08		%

(1) Thermal hysteresis is defined as $V_{Z,25°C}$ (after cycling to –40°C) – $V_{Z,25°C}$ (after cycling to 125°C).

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LM4040x20I Electrical Characteristics

at industrial temperature range, full-range T_A = –40°C to 85°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	T_A	LM4040C20I			LM4040D20I			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
V_Z	Reverse breakdown voltage	I_Z = 100 µA	25°C		2.048			2.048		V
ΔV_Z	Reverse breakdown voltage tolerance	I_Z = 100 µA	25°C	–10		10	–20		20	mV
			Full range	–23		23	–40		40	
$I_{Z,min}$	Minimum cathode current		25°C		45	75		45	75	µA
			Full range			80			80	
α_{VZ}	Average temperature coefficient of reverse breakdown voltage	I_Z = 10 mA	25°C		±20			±20		ppm/°C
		I_Z = 1 mA	25°C		±15			±15		
			Full range			±100			±150	
		I_Z = 100 µA	25°C		±15			±15		
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse breakdown voltage change with cathode current change	$I_{Z,min} < I_Z < 1$ mA	25°C		0.3	0.8		0.3	1	mV
			Full range			1			1.2	
		1 mA < I_Z < 15 mA	25°C		2.5	6		2.5	8	
			Full range			8			10	
Z_Z	Reverse dynamic impedance	I_Z = 1 mA, f = 120 Hz, I_{AC} = 0.1 I_Z	25°C		0.3	0.9		0.3	1.1	Ω
e_N	Wideband noise	I_Z = 100 µA, 10 Hz ≤ f ≤ 10 kHz	25°C		35			35		μV_{RMS}
	Long-term stability of reverse breakdown voltage	t = 1000 h, T_A = 25°C ± 0.1°C, I_Z = 100 µA			120			120		ppm
V_{HYST}	Thermal hysteresis (1)	ΔT_A = –40°C to 125°C			0.08			0.08		%

(1) Thermal hysteresis is defined as $V_{Z,25°C}$ (after cycling to –40°C) – $V_{Z,25°C}$ (after cycling to 125°C).

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LM4040x20Q Electrical Characteristics

at extended temperature range, full-range T_A = –40°C to 125°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	T_A	LM4040C20Q			LM4040D20Q			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
V_Z	Reverse breakdown voltage	I_Z = 100 µA	25°C		2.048			2.048		V
ΔV_Z	Reverse breakdown voltage tolerance	I_Z = 100 µA	25°C	–10		10	–20		20	mV
			Full range	–30		30	–50		50	
$I_{Z,min}$	Minimum cathode current		25°C		45	75		45	75	µA
			Full range			80			80	
α_{VZ}	Average temperature coefficient of reverse breakdown voltage	I_Z = 10 mA	25°C		±20			±20		ppm/°C
		I_Z = 1 mA	25°C		±15			±15		
			Full range			±100			±150	
		I_Z = 100 µA	25°C		±15			±15		
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse breakdown voltage change with cathode current change	$I_{Z,min} < I_Z < 1$ mA	25°C		0.3	0.8		0.3	1	mV
			Full range			1			1.2	
		1 mA < I_Z < 15 mA	25°C		2.5	6		2.5	8	
			Full range			8			10	
Z_Z	Reverse dynamic impedance	I_Z = 1 mA, f = 120 Hz, I_{AC} = 0.1 I_Z	25°C		0.3	0.9		0.3	1.1	Ω
e_N	Wideband noise	I_Z = 100 µA, 10 Hz ≤ f ≤ 10 kHz	25°C		35			35		μV_{RMS}
	Long-term stability of reverse breakdown voltage	t = 1000 h, T_A = 25°C ± 0.1°C, I_Z = 100 µA			120			120		ppm
V_{HYST}	Thermal hysteresis (1)	ΔT_A = –40°C to 125°C			0.08			0.08		%

(1) Thermal hysteresis is defined as $V_{Z,25°C}$ (after cycling to –40°C) – $V_{Z,25°C}$ (after cycling to 125°C).

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LM4040x25I Electrical Characteristics

at industrial temperature range, full-range T_A = –40°C to 85°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	T_A	LM4040A25I			LM4040B25I			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
V_Z	Reverse breakdown voltage	I_Z = 100 µA	25°C		2.5			2.5		V
ΔV_Z	Reverse breakdown voltage tolerance	I_Z = 100 µA	25°C	–2.5		2.5	–5		5	mV
			Full range	–19		19	–21		21	
$I_{Z,min}$	Minimum cathode current		25°C		45	75		45	75	µA
			Full range			80			80	
α_{VZ}	Average temperature coefficient of reverse breakdown voltage	I_Z = 10 mA	25°C		±20			±20		ppm/°C
		I_Z = 1 mA	25°C		±15			±15		
			Full range			±100			±100	
		I_Z = 100 µA	25°C		±15			±15		
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse breakdown voltage change with cathode current change	$I_{Z,min} < I_Z < 1$ mA	25°C		0.3	0.8		0.3	0.8	mV
			Full range			1			1	
		1 mA < I_Z < 15 mA	25°C		2.5	6		2.5	6	
			Full range			8			8	
Z_Z	Reverse dynamic impedance	I_Z = 1 mA, f = 120 Hz, I_{AC} = 0.1 I_Z	25°C		0.3	0.8		0.3	0.8	Ω
e_N	Wideband noise	I_Z = 100 µA, 10 Hz ≤ f ≤ 10 kHz	25°C		35			35		μV_{RMS}
	Long-term stability of reverse breakdown voltage	t = 1000 h, T_A = 25°C ± 0.1°C, I_Z = 100 µA			120			120		ppm
V_{HYST}	Thermal hysteresis (1)	ΔT_A = –40°C to 125°C			0.08			0.08		%

(1) Thermal hysteresis is defined as $V_{Z,25°C}$ (after cycling to –40°C) – $V_{Z,25°C}$ (after cycling to 125°C).

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LM4040x25I Electrical Characteristics

at industrial temperature range, full-range T_A = –40°C to 85°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	T_A	LM4040C25I			LM4040D25I			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
V_Z	Reverse breakdown voltage	I_Z = 100 µA	25°C		2.5			2.5		V
ΔV_Z	Reverse breakdown voltage tolerance	I_Z = 100 µA	25°C	–12		12	–25		25	mV
			Full range	–29		29	–49		49	
$I_{Z,min}$	Minimum cathode current		25°C		45	75		45	75	µA
			Full range			80			80	
α_{VZ}	Average temperature coefficient of reverse breakdown voltage	I_Z = 10 mA	25°C		±20			±20		ppm/°C
		I_Z = 1 mA	25°C		±15			±15		
			Full range			±100			±150	
		I_Z = 100 µA	25°C		±15			±15		
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse breakdown voltage change with cathode current change	$I_{Z,min} < I_Z < 1$ mA	25°C		0.3	0.8		0.3	1	mV
			Full range			1			1.2	
		1 mA < I_Z < 15 mA	25°C		2.5	6		2.5	8	
			Full range			8			10	
Z_Z	Reverse dynamic impedance	I_Z = 1 mA, f = 120 Hz, I_{AC} = 0.1 I_Z	25°C		0.3	0.9		0.3	1.1	Ω
e_N	Wideband noise	I_Z = 100 µA, 10 Hz ≤ f ≤ 10 kHz	25°C		35			35		μV_{RMS}
	Long-term stability of reverse breakdown voltage	t = 1000 h, T_A = 25°C ± 0.1°C, I_Z = 100 µA			120			120		ppm
V_{HYST}	Thermal hysteresis (1)	ΔT_A = –40°C to 125°C			0.08			0.08		%

(1) Thermal hysteresis is defined as $V_{Z,25°C}$ (after cycling to –40°C) – $V_{Z,25°C}$ (after cycling to 125°C).

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LM4040x25Q Electrical Characteristics

at extended temperature range, full-range T_A = –40°C to 125°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	T_A	LM4040C25Q			LM4040D25Q			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
V_Z	Reverse breakdown voltage	I_Z = 100 µA	25°C		2.5			2.5		V
ΔV_Z	Reverse breakdown voltage tolerance	I_Z = 100 µA	25°C	–12		12	–25		25	mV
			Full range	–38		38	–63		63	
$I_{Z,min}$	Minimum cathode current		25°C		45	75		45	75	µA
			Full range			80			80	
α_{VZ}	Average temperature coefficient of reverse breakdown voltage	I_Z = 10 mA	25°C		±20			±20		ppm/°C
		I_Z = 1 mA	25°C		±15			±15		
			Full range			±100			±150	
		I_Z = 100 µA	25°C		±15			±15		
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse breakdown voltage change with cathode current change	$I_{Z,min} < I_Z < 1$ mA	25°C		0.3	0.8		0.3	1	mV
			Full range			1			1.2	
		1 mA < I_Z < 15 mA	25°C		2.5	6		2.5	8	
			Full range			8			10	
Z_Z	Reverse dynamic impedance	I_Z = 1 mA, f = 120 Hz, I_{AC} = 0.1 I_Z	25°C		0.3	0.9		0.3	1.1	Ω
e_N	Wideband noise	I_Z = 100 µA, 10 Hz ≤ f ≤ 10 kHz	25°C		35			35		μV_{RMS}
	Long-term stability of reverse breakdown voltage	t = 1000 h, T_A = 25°C ± 0.1°C, I_Z = 100 µA			120			120		ppm
V_{HYST}	Thermal hysteresis (1)	ΔT_A = –40°C to 125°C			0.08			0.08		%

(1) Thermal hysteresis is defined as $V_{Z,25°C}$ (after cycling to –40°C) – $V_{Z,25°C}$ (after cycling to 125°C).

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LM4040x30I Electrical Characteristics

at industrial temperature range, full-range T_A = –40°C to 85°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	T_A	LM4040A30I			LM4040B30I			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
V_Z	Reverse breakdown voltage	I_Z = 100 µA	25°C		3			3		V
ΔV_Z	Reverse breakdown voltage tolerance	I_Z = 100 µA	25°C	–3		3	–6		6	mV
			Full range	–22		22	–26		26	
$I_{Z,min}$	Minimum cathode current		25°C		47	77		47	77	µA
			Full range			82			82	
α_{VZ}	Average temperature coefficient of reverse breakdown voltage	I_Z = 10 mA	25°C		±20			±20		ppm/°C
		I_Z = 1 mA	25°C		±15			±15		
			Full range			±100			±100	
		I_Z = 100 µA	25°C		±15			±15		
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse breakdown voltage change with cathode current change	$I_{Z,min} < I_Z < 1$ mA	25°C		0.6	0.8		0.6	0.8	mV
			Full range			1.1			1.1	
		1 mA < I_Z < 15 mA	25°C		2.7	6		2.7	6	
			Full range			9			9	
Z_Z	Reverse dynamic impedance	I_Z = 1 mA, f = 120 Hz, I_{AC} = 0.1 I_Z	25°C		0.4	0.9		0.4	0.9	Ω
e_N	Wideband noise	I_Z = 100 µA, 10 Hz ≤ f ≤ 10 kHz	25°C		35			35		μV_{RMS}
	Long-term stability of reverse breakdown voltage	t = 1000 h, T_A = 25°C ± 0.1°C, I_Z = 100 µA			120			120		ppm
V_{HYST}	Thermal hysteresis (1)	ΔT_A = –40°C to 125°C			0.08			0.08		%

(1) Thermal hysteresis is defined as $V_{Z,25°C}$ (after cycling to –40°C) – $V_{Z,25°C}$ (after cycling to 125°C).

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LM4040x30I Electrical Characteristics

at industrial temperature range, full-range T_A = –40°C to 85°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	T_A	LM4040C30I			LM4040D30I			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
V_Z	Reverse breakdown voltage	I_Z = 100 µA	25°C		3			3		V
ΔV_Z	Reverse breakdown voltage tolerance	I_Z = 100 µA	25°C	–15		15	–30		30	mV
			Full range	–34		34	–59		59	
$I_{Z,min}$	Minimum cathode current		25°C		45	77		45	77	µA
			Full range			82			82	
α_{VZ}	Average temperature coefficient of reverse breakdown voltage	I_Z = 10 mA	25°C		±20			±20		ppm/°C
		I_Z = 1 mA	25°C		±15			±15		
			Full range			±100			±150	
		I_Z = 100 µA	25°C		±15			±15		
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse breakdown voltage change with cathode current change	$I_{Z,min} < I_Z < 1$ mA	25°C		0.4	0.8		1.4	1	mV
			Full range			1.1			1.3	
		1 mA < I_Z < 15 mA	25°C		2.7	6		2.7	8	
			Full range			9			11	
Z_Z	Reverse dynamic impedance	I_Z = 1 mA, f = 120 Hz, I_{AC} = 0.1 I_Z	25°C		0.4	0.9		0.4	1.2	Ω
e_N	Wideband noise	I_Z = 100 µA, 10 Hz ≤ f ≤ 10 kHz	25°C		35			35		μV_{RMS}
	Long-term stability of reverse breakdown voltage	t = 1000 h, T_A = 25°C ± 0.1°C, I_Z = 100 µA			120			120		ppm
V_{HYST}	Thermal hysteresis (1)	ΔT_A = –40°C to 125°C			0.08			0.08		%

(1) Thermal hysteresis is defined as $V_{Z,25°C}$ (after cycling to –40°C) – $V_{Z,25°C}$ (after cycling to 125°C).

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LM4040x30Q Electrical Characteristics

at extended temperature range, full-range T_A = –40°C to 125°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	T_A	LM4040C30Q			LM4040D30Q			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
V_Z	Reverse breakdown voltage	I_Z = 100 µA	25°C		3			3		V
ΔV_Z	Reverse breakdown voltage tolerance	I_Z = 100 µA	25°C	–15		15	–30		30	mV
			Full range	–45		45	–75		75	
$I_{Z,min}$	Minimum cathode current		25°C		47	77		47	77	µA
			Full range			82			82	
α_{VZ}	Average temperature coefficient of reverse breakdown voltage	I_Z = 10 mA	25°C		±20			±20		ppm/°C
		I_Z = 1 mA	25°C		±15			±15		
			Full range			±100			±150	
		I_Z = 100 µA	25°C		±15			±15		
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse breakdown voltage change with cathode current change	$I_{Z,min} < I_Z < 1$ mA	25°C		0.4	0.8		0.4	1.1	mV
			Full range			1.1			1.3	
		1 mA < I_Z < 15 mA	25°C		2.7	6		2.7	8	
			Full range			9			11	
Z_Z	Reverse dynamic impedance	I_Z = 1 mA, f = 120 Hz, I_{AC} = 0.1 I_Z	25°C		0.4	0.9		0.4	1.2	Ω
e_N	Wideband noise	I_Z = 100 µA, 10 Hz ≤ f ≤ 10 kHz	25°C		35			35		μV_{RMS}
	Long-term stability of reverse breakdown voltage	t = 1000 h, T_A = 25°C ± 0.1°C, I_Z = 100 µA			120			120		ppm
V_{HYST}	Thermal hysteresis (1)	ΔT_A = –40°C to 125°C			0.08			0.08		%

(1) Thermal hysteresis is defined as $V_{Z,25°C}$ (after cycling to –40°C) – $V_{Z,25°C}$ (after cycling to 125°C).

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LM4040x41I Electrical Characteristics

at industrial temperature range, full-range T_A = –40°C to 85°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	T_A	LM4040A41I			LM4040B41I			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
V_Z	Reverse breakdown voltage	I_Z = 100 µA	25°C		4.096			4.096		V
ΔV_Z	Reverse breakdown voltage tolerance	I_Z = 100 µA	25°C	–4.1		4.1	–8.2		8.2	mV
			Full range	–31		31	–35		35	
$I_{Z,min}$	Minimum cathode current		25°C		50	83		50	83	µA
			Full range			88			88	
α_{VZ}	Average temperature coefficient of reverse breakdown voltage	I_Z = 10 mA	25°C		±30			±30		ppm/°C
		I_Z = 1 mA	25°C		±20			±20		
			Full range			±100			±100	
		I_Z = 100 µA	25°C		±20			±20		
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse breakdown voltage change with cathode current change	$I_{Z,min} < I_Z < 1$ mA	25°C		0.5	0.9		0.5	0.9	mV
			Full range			1.2			1.2	
		1 mA < I_Z < 15 mA	25°C		3	7		3	7	
			Full range			10			10	
Z_Z	Reverse dynamic impedance	I_Z = 1 mA, f = 120 Hz, I_{AC} = 0.1 I_Z	25°C		0.5	1		0.5	1	Ω
e_N	Wideband noise	I_Z = 100 µA, 10 Hz ≤ f ≤ 10 kHz	25°C		80			80		μV_{RMS}
	Long-term stability of reverse breakdown voltage	t = 1000 h, T_A = 25°C ± 0.1°C, I_Z = 100 µA			120			120		ppm
V_{HYST}	Thermal hysteresis (1)	ΔT_A = –40°C to 125°C			0.08			0.08		%

(1) Thermal hysteresis is defined as $V_{Z,25°C}$ (after cycling to –40°C) – $V_{Z,25°C}$ (after cycling to 125°C).

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LM4040x41I Electrical Characteristics

at industrial temperature range, full-range T_A = –40°C to 85°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	T_A	LM4040C41I			LM4040D41I			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
V_Z	Reverse breakdown voltage	I_Z = 100 µA	25°C		4.096			4.096		V
ΔV_Z	Reverse breakdown voltage tolerance	I_Z = 100 µA	25°C	–20		20	–41		41	mV
			Full range	–47		47	–81		81	
$I_{Z,min}$	Minimum cathode current		25°C		50	83		50	83	µA
			Full range			88			88	
α_{VZ}	Average temperature coefficient of reverse breakdown voltage	I_Z = 10 mA	25°C		±30			±30		ppm/°C
		I_Z = 1 mA	25°C		±20			±20		
			Full range			±100			±150	
		I_Z = 100 µA	25°C		±20			±20		
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse breakdown voltage change with cathode current change	$I_{Z,min} < I_Z < 1$ mA	25°C		0.5	0.9		0.5	1.2	mV
			Full range			1.2			1.5	
		1 mA < I_Z < 15 mA	25°C		3	7		3	9	
			Full range			10			13	
Z_Z	Reverse dynamic impedance	I_Z = 1 mA, f = 120 Hz, I_{AC} = 0.1 I_Z	25°C		0.5	1		0.5	1.3	Ω
e_N	Wideband noise	I_Z = 100 µA, 10 Hz ≤ f ≤ 10 kHz	25°C		80			80		μV_{RMS}
	Long-term stability of reverse breakdown voltage	t = 1000 h, T_A = 25°C ± 0.1°C, I_Z = 100 µA			120			120		ppm
V_{HYST}	Thermal hysteresis (1)	ΔT_A = –40°C to 125°C			0.08			0.08		%

(1) Thermal hysteresis is defined as $V_{Z,25°C}$ (after cycling to –40°C) – $V_{Z,25°C}$ (after cycling to 125°C).

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LM4040x50I Electrical Characteristics

at industrial temperature range, full-range T_A = –40°C to 85°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	T_A	LM4040A50I			LM4040B50I			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
V_Z	Reverse breakdown voltage	I_Z = 100 µA	25°C		5			5		V
ΔV_Z	Reverse breakdown voltage tolerance	I_Z = 100 µA	25°C	–5		5	–10		10	mV
			Full range	–38		38	–43		43	
$I_{Z,min}$	Minimum cathode current		25°C		65	89		65	89	µA
			Full range			95			95	
α_{VZ}	Average temperature coefficient of reverse breakdown voltage	I_Z = 10 mA	25°C		±30			±30		ppm/°C
		I_Z = 1 mA	25°C		±20			±20		
			Full range			±100			±100	
		I_Z = 100 µA	25°C		±20			±20		
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse breakdown voltage change with cathode current change	$I_{Z,min} < I_Z < 1$ mA	25°C		0.5	1		0.5	1	mV
			Full range			1.4			1.4	
		1 mA < I_Z < 15 mA	25°C		3.5	8		3.5	8	
			Full range			12			12	
Z_Z	Reverse dynamic impedance	I_Z = 1 mA, f = 120 Hz, I_{AC} = 0.1 I_Z	25°C		0.5	1.1		0.5	1.1	Ω
e_N	Wideband noise	I_Z = 100 µA, 10 Hz ≤ f ≤ 10 kHz	25°C		80			80		μV_{RMS}
	Long-term stability of reverse breakdown voltage	t = 1000 h, T_A = 25°C ± 0.1°C, I_Z = 100 µA			120			120		ppm
V_{HYST}	Thermal hysteresis (1)	ΔT_A = –40°C to 125°C			0.08			0.08		%

(1) Thermal hysteresis is defined as $V_{Z,25°C}$ (after cycling to –40°C) – $V_{Z,25°C}$ (after cycling to 125°C).

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LM4040x50I Electrical Characteristics

at industrial temperature range, full-range T_A = –40°C to 85°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	T_A	LM4040C50I			LM4040D50I			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
V_Z	Reverse breakdown voltage	I_Z = 100 µA	25°C		5			5		V
ΔV_Z	Reverse breakdown voltage tolerance	I_Z = 100 µA	25°C	–25		25	–50		50	mV
			Full range	–58		58	–99		99	
$I_{Z,min}$	Minimum cathode current		25°C		65	89		65	89	µA
			Full range			95			95	
α_{VZ}	Average temperature coefficient of reverse breakdown voltage	I_Z = 10 mA	25°C		±30			±30		ppm/°C
		I_Z = 1 mA	25°C		±20			±20		
			Full range			±100			±150	
		I_Z = 100 µA	25°C		±20			±20		
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse breakdown voltage change with cathode current change	$I_{Z,min} < I_Z < 1$ mA	25°C		0.5	1		0.5	1.3	mV
			Full range			1.4			1.8	
		1 mA < I_Z < 15 mA	25°C		3.5	8		3.5	10	
			Full range			12			15	
Z_Z	Reverse dynamic impedance	I_Z = 1 mA, f = 120 Hz, I_{AC} = 0.1 I_Z	25°C		0.5	1.1		0.5	1.5	Ω
e_N	Wideband noise	I_Z = 100 µA, 10 Hz ≤ f ≤ 10 kHz	25°C		80			80		μV_{RMS}
	Long-term stability of reverse breakdown voltage	t = 1000 h, T_A = 25°C ± 0.1°C, I_Z = 100 µA			120			120		ppm
V_{HYST}	Thermal hysteresis (1)	ΔT_A = –40°C to 125°C			0.08			0.08		%

(1) Thermal hysteresis is defined as $V_{Z,25°C}$ (after cycling to –40°C) – $V_{Z,25°C}$ (after cycling to 125°C).

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LM4040x50Q Electrical Characteristics

at extended temperature range, full-range T_A = –40°C to 125°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	T_A	LM4040C50Q			LM4040D50Q			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
V_Z	Reverse breakdown voltage	I_Z = 100 µA	25°C		5			5		V
ΔV_Z	Reverse breakdown voltage tolerance	I_Z = 100 µA	25°C	–25		25	–50		50	mV
			Full range	–75		75	–125		125	
$I_{Z,min}$	Minimum cathode current		25°C		65	89		65	89	µA
			Full range			95			95	
α_{VZ}	Average temperature coefficient of reverse breakdown voltage	I_Z = 10 mA	25°C		±30			±30		ppm/°C
		I_Z = 1 mA	25°C		±20			±20		
			Full range			±100			±150	
		I_Z = 100 µA	25°C		±20			±20		
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse breakdown voltage change with cathode current change	$I_{Z,min} < I_Z < 1$ mA	25°C		0.5	1		0.5	1	mV
			Full range			1.4			1.8	
		1 mA < I_Z < 15 mA	25°C		3.5	8		3.5	8	
			Full range			12			12	
Z_Z	Reverse dynamic impedance	I_Z = 1 mA, f = 120 Hz, I_{AC} = 0.1 I_Z	25°C		0.5	1.1		0.5	1.1	Ω
e_N	Wideband noise	I_Z = 100 µA, 10 Hz ≤ f ≤ 10 kHz	25°C		80			80		μV_{RMS}
	Long-term stability of reverse breakdown voltage	t = 1000 h, T_A = 25°C ± 0.1°C, I_Z = 100 µA			120			120		ppm
V_{HYST}	Thermal hysteresis (1)	ΔT_A = –40°C to 125°C			0.08			0.08		%

(1) Thermal hysteresis is defined as $V_{Z,25°C}$ (after cycling to –40°C) – $V_{Z,25°C}$ (after cycling to 125°C).

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LM4040x82I Electrical Characteristics

at industrial temperature range, full-range T_A = –40°C to 85°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	T_A	LM4040A82I			LM4040B82I			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
V_Z	Reverse breakdown voltage	I_Z = 150 µA	25°C		8.192			8.192		V
ΔV_Z	Reverse breakdown voltage tolerance	I_Z = 150 µA	25°C	–8.2		8.2	–16		16	mV
			Full range	–61		61	–70		70	
$I_{Z,min}$	Minimum cathode current		25°C		67	106		67	106	µA
			Full range			110			110	
α_{VZ}	Average temperature coefficient of reverse breakdown voltage	I_Z = 10 mA	25°C		±40			±40		ppm/°C
		I_Z = 1 mA	25°C		±20			±20		
			Full range			±100			±100	
		I_Z = 150 µA	25°C		±20			±20		
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse breakdown voltage change with cathode current change	$I_{Z,min} < I_Z < 1$ mA	25°C		0.6	1.3		0.6	1.6	mV
			Full range			2.5			2.5	
		1 mA < I_Z < 15 mA	25°C		7	10		7	10	
			Full range			18			18	
Z_Z	Reverse dynamic impedance	I_Z = 1 mA, f = 120 Hz, I_{AC} = 0.1 I_Z	25°C		0.6	1.5		0.6	1.5	Ω
e_N	Wideband noise	I_Z = 150 µA, 10 Hz ≤ f ≤ 10 kHz	25°C		130			130		μV_{RMS}
	Long-term stability of reverse breakdown voltage	t = 1000 h, T_A = 25°C ± 0.1°C, I_Z = 150 µA			120			120		ppm
V_{HYST}	Thermal hysteresis (1)	ΔT_A = –40°C to 125°C			0.08			0.08		%

(1) Thermal hysteresis is defined as $V_{Z,25°C}$ (after cycling to –40°C) – $V_{Z,25°C}$ (after cycling to 125°C).

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LM4040x82I Electrical Characteristics

at industrial temperature range, full-range T_A = –40°C to 85°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	T_A	LM4040C82I			LM4040D82I			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
V_Z	Reverse breakdown voltage	I_Z = 150 µA	25°C		8.192			8.192		V
ΔV_Z	Reverse breakdown voltage tolerance	I_Z = 150 µA	25°C	–41		41	–82		82	mV
			Full range	–94		94	–162		162	
$I_{Z,min}$	Minimum cathode current		25°C		67	106		67	111	µA
			Full range			110			115	
α_{VZ}	Average temperature coefficient of reverse breakdown voltage	I_Z = 10 mA	25°C		±40			±40		ppm/°C
		I_Z = 1 mA	25°C		±20			±20		
			Full range			±100			±150	
		I_Z = 150 µA	25°C		±20			±20		
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse breakdown voltage change with cathode current change	$I_{Z,min} < I_Z < 1$ mA	25°C		0.6	1.3		0.6	1.7	mV
			Full range			2.5			3	
		1 mA < I_Z < 15 mA	25°C		7	10		7	15	
			Full range			18			24	
Z_Z	Reverse dynamic impedance	I_Z = 1 mA, f = 120 Hz, I_{AC} = 0.1 I_Z	25°C		0.6	1.5		0.6	1.9	Ω
e_N	Wideband noise	I_Z = 150 µA, 10 Hz ≤ f ≤ 10 kHz	25°C		130			130		μV_{RMS}
	Long-term stability of reverse breakdown voltage	t = 1000 h, T_A = 25°C ± 0.1°C, I_Z = 150 µA			120			120		ppm
V_{HYST}	Thermal hysteresis (1)	ΔT_A = –40°C to 125°C			0.08			0.08		%

(1) Thermal hysteresis is defined as $V_{Z,25°C}$ (after cycling to –40°C) – $V_{Z,25°C}$ (after cycling to 125°C).

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LM4040x10I Electrical Characteristics

at industrial temperature range, full-range T_A = –40°C to 85°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	T_A	LM4040A10I			LM4040B10I			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
V_Z	Reverse breakdown voltage	I_Z = 150 µA	25°C		10			10		V
ΔV_Z	Reverse breakdown voltage tolerance	I_Z = 150 µA	25°C	–10		10	–20		20	mV
			Full range	–75		75	–85		85	
$I_{Z,min}$	Minimum cathode current		25°C		75	120		75	120	µA
			Full range			125			125	
α_{VZ}	Average temperature coefficient of reverse breakdown voltage	I_Z = 10 mA	25°C		±40			±40		ppm/°C
		I_Z = 1 mA	25°C		±20			±20		
			Full range			±100			±100	
		I_Z = 150 µA	25°C		±20			±20		
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse breakdown voltage change with cathode current change	$I_{Z,min} < I_Z < 1$ mA	25°C		0.8	1.5		0.8	1.5	mV
			Full range			3.5			3.5	
		1 mA < I_Z < 15 mA	25°C		8	14		8	14	
			Full range			24			24	
Z_Z	Reverse dynamic impedance	I_Z = 1 mA, f = 120 Hz, I_{AC} = 0.1 I_Z	25°C		0.7	1.7		0.7	1.7	Ω
e_N	Wideband noise	I_Z = 150 µA, 10 Hz ≤ f ≤ 10 kHz	25°C		180			180		μV_{RMS}
	Long-term stability of reverse breakdown voltage	t = 1000 h, T_A = 25°C ± 0.1°C, I_Z = 150 µA			120			120		ppm
V_{HYST}	Thermal hysteresis (1)	ΔT_A = –40°C to 125°C			0.08			0.08		%

(1) Thermal hysteresis is defined as $V_{Z,25°C}$ (after cycling to –40°C) – $V_{Z,25°C}$ (after cycling to 125°C).

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LM4040x10I Electrical Characteristics

at industrial temperature range, full-range T_A = –40°C to 85°C (unless otherwise noted)

PARAMETER		TEST CONDITIONS	T_A	LM4040C10I			LM4040D10I			UNIT
				MIN	TYP	MAX	MIN	TYP	MAX	
V_Z	Reverse breakdown voltage	I_Z = 150 µA	25°C		10			10		V
ΔV_Z	Reverse breakdown voltage tolerance	I_Z = 150 µA	25°C	–50		50	–100		100	mV
			Full range	–115		115	–198		198	
$I_{Z,min}$	Minimum cathode current		25°C		75	120		75	130	µA
			Full range			125			135	
α_{VZ}	Average temperature coefficient of reverse breakdown voltage	I_Z = 10 mA	25°C		±40			±40		ppm/°C
		I_Z = 1 mA	25°C		±20			±20		
			Full range			±100			±150	
		I_Z = 150 µA	25°C		±20			±20		
$\frac{\Delta V_Z}{\Delta I_Z}$	Reverse breakdown voltage change with cathode current change	$I_{Z,min} < I_Z < 1$ mA	25°C		0.8	1.5		0.8	2	mV
			Full range			3.5			4	
		1 mA < I_Z < 15 mA	25°C		8	14		8	18	
			Full range			24			29	
Z_Z	Reverse dynamic impedance	I_Z = 1 mA, f = 120 Hz, I_{AC} = 0.1 I_Z	25°C		0.7	1.7		0.7	2.3	Ω
e_N	Wideband noise	I_Z = 150 µA, 10 Hz ≤ f ≤ 10 kHz	25°C		180			180		μV_{RMS}
	Long-term stability of reverse breakdown voltage	t = 1000 h, T_A = 25°C ± 0.1°C, I_Z = 150 µA			120			120		ppm
V_{HYST}	Thermal hysteresis (1)	ΔT_A = –40°C to 125°C			0.08			0.08		%

(1) Thermal hysteresis is defined as $V_{Z,25°C}$ (after cycling to –40°C) – $V_{Z,25°C}$ (after cycling to 125°C).

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TYPICAL CHARACTERISTICS

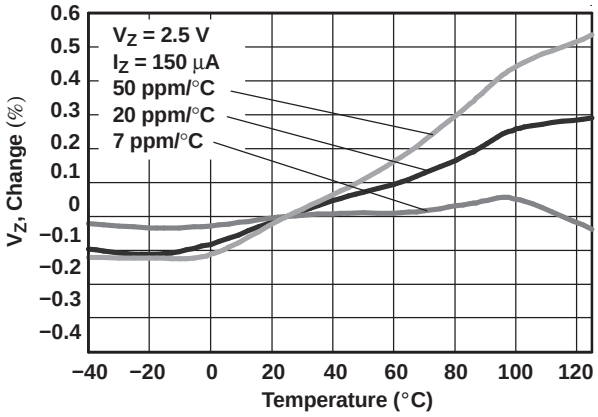

Figure 1. Temperature Drift for Different Average Temperature Coefficients

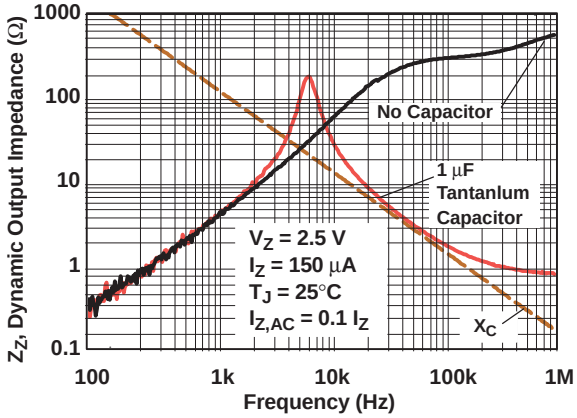

Figure 2. Output Impedance vs Frequency

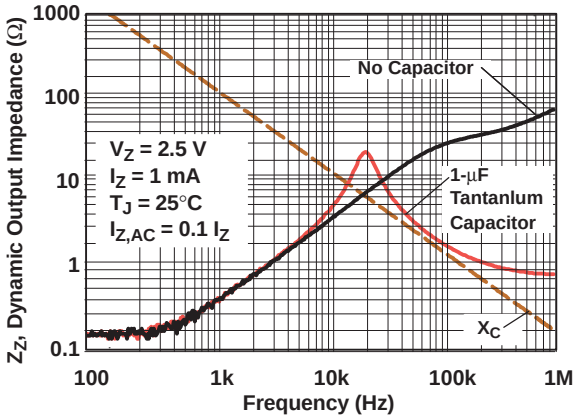

Figure 3. Output Impedance vs Frequency

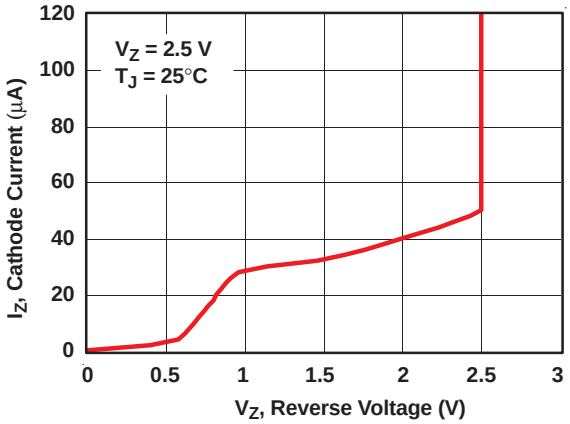

Figure 4. Temperature Drift for Different Average Temperature Coefficient

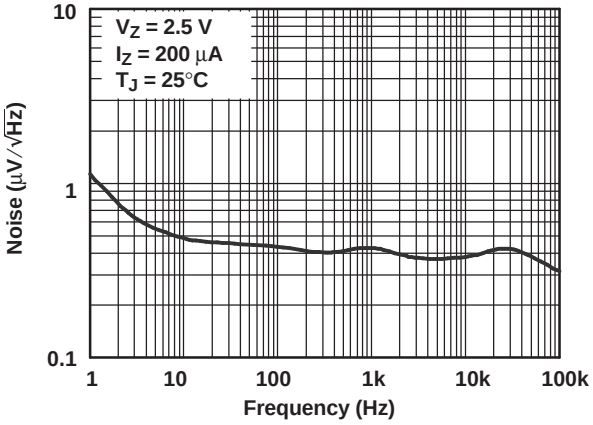

Figure 5. Noise Voltage vs Frequency

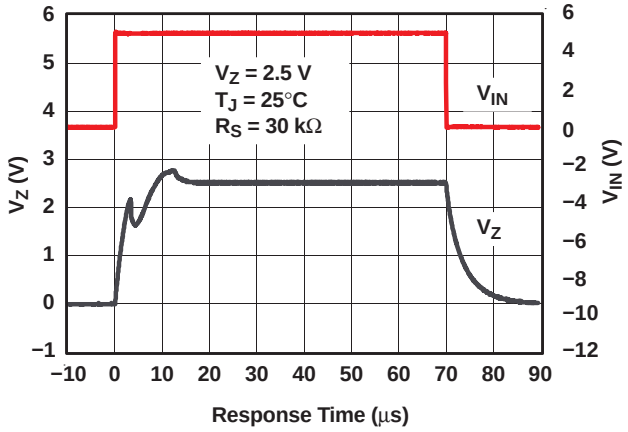

Figure 6. Start-Up Characteristics

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APPLICATION INFORMATION

Start-Up Characteristics

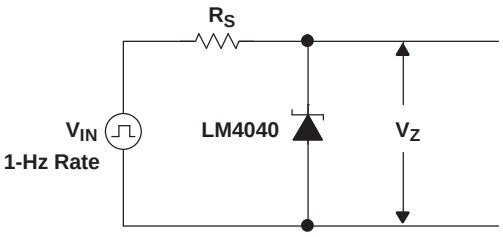

Figure 7. Test Circuit

Output Capacitor

The LM4040 does not require an output capacitor across cathode and anode for stability. However, if an output bypass capacitor is desired, the LM4040 is designed to be stable with all capacitive loads.

SOT-23 Connections

There is a parasitic Schottky diode connected between pins 2 and 3 of the SOT-23 packaged device. Thus, pin 3 of the SOT-23 package must be left floating or connected to pin 2.

Use With ADCs or DACs

The LM4040x-41 is designed to be a cost-effective voltage reference as required in 12-bit data-acquisition systems. For 12-bit systems operating from 5-V supplies such as the ADS7842 (see Figure 8), the LM4040x-41 (4.096 V) permits operation with an LSB of 1 mV.

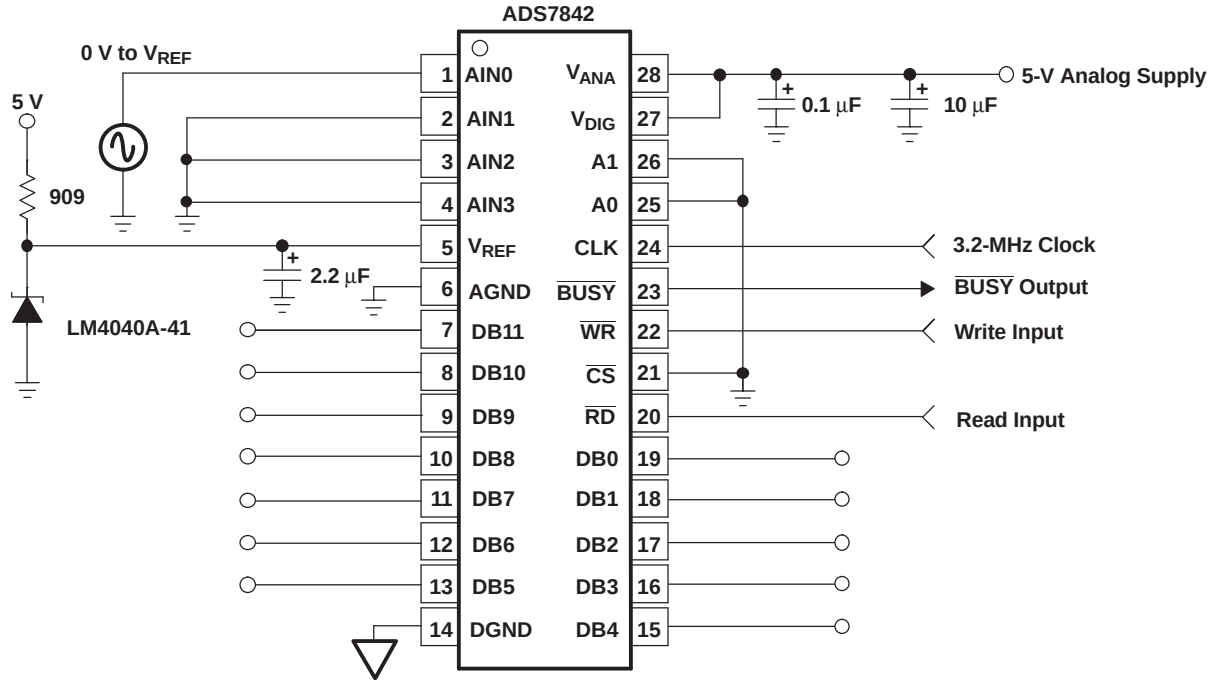

Figure 8. Data-Acquisition Circuit With LM4040x-41

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Cathode and Load Currents

In a typical shunt-regulator configuration (see Figure 9), an external resistor, R_S, is connected between the supply and the cathode of the LM4040. R_S must be set properly, as it sets the total current available to supply the load (I_L) and bias the LM4040 (I_Z). In all cases, I_Z must stay within a specified range for proper operation of the reference. Taking into consideration one extreme in the variation of the load and supply voltage (maximum I_L and minimum V_S), R_S must be small enough to supply the minimum I_Z required for operation of the regulator, as given by data-sheet parameters. At the other extreme, maximum V_S and minimum I_L, R_S must be large enough to limit I_Z to less than its maximum-rated value of 15 mA.

R_S is calculated according to Equation 1:

$$R_S = \frac{(V_S - V_Z)}{(I_L + I_Z)} \quad (1)$$

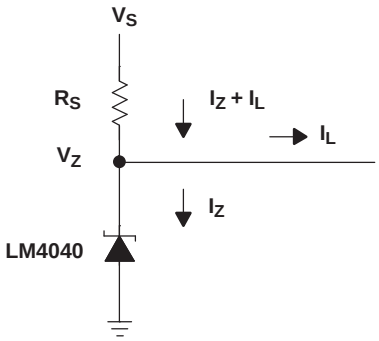

Figure 9. Shunt Regulator

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PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
LM4040A10IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4NQU	Samples
LM4040A10IDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4NQU	Samples
LM4040A10IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4NQU	Samples
LM4040A10IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	PHU	Samples
LM4040A10ILP	PREVIEW	TO-92	LP	3	1000	TBD	Call TI	Call TI	-40 to 85		
LM4040A10ILPR	PREVIEW	TO-92	LP	3	2000	TBD	Call TI	Call TI	-40 to 85		
LM4040A20IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4MCU	Samples
LM4040A20IDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4MCU	Samples
LM4040A20IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4MCU	Samples
LM4040A20IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4MCU	Samples
LM4040A20IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	MSU	Samples
LM4040A20IDCKRE4	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	MSU	Samples
LM4040A25IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4NG3 ~ 4NGU)	Samples
LM4040A25IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4NG3 ~ 4NGU)	Samples
LM4040A25IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4NG3 ~ 4NGU)	Samples
LM4040A25IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	P2U	Samples
LM4040A25ILP	PREVIEW	TO-92	LP	3	1000	TBD	Call TI	Call TI	-40 to 85		
LM4040A25ILPR	PREVIEW	TO-92	LP	3	2000	TBD	Call TI	Call TI	-40 to 85		
LM4040A30IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M6U	Samples

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
LM4040A30IDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M6U	Samples
LM4040A30IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M6U	Samples
LM4040A30IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M6U	Samples
LM4040A30IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	P9U	Samples
LM4040A30IDCKRE4	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	P9U	Samples
LM4040A30IDCKT	PREVIEW	SC70	DCK	5	250	TBD	Call TI	Call TI	-40 to 85		
LM4040A30ILP	PREVIEW	TO-92	LP	3	1000	TBD	Call TI	Call TI	-40 to 85		
LM4040A30ILPM	PREVIEW	TO-92	LP	3	2000	TBD	Call TI	Call TI	-40 to 85		
LM4040A30ILPR	PREVIEW	TO-92	LP	3	2000	TBD	Call TI	Call TI	-40 to 85		
LM4040A41IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M2U	Samples
LM4040A41IDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M2U	Samples
LM4040A41IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M2U	Samples
LM4040A41IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M2U	Samples
LM4040A41IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	P4U	Samples
LM4040A41ILP	PREVIEW	TO-92	LP	3	1000	TBD	Call TI	Call TI	-40 to 85		
LM4040A41ILPR	PREVIEW	TO-92	LP	3	2000	TBD	Call TI	Call TI	-40 to 85		
LM4040A50IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4NA3 ~ 4NAU)	Samples
LM4040A50IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4NA3 ~ 4NAU)	Samples
LM4040A50IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4NA3 ~ 4NAU)	Samples
LM4040A50IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	N5U	Samples

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
LM4040A50IDCKRG4	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	N5U	Samples
LM4040A50ILP	PREVIEW	TO-92	LP	3	1000	TBD	Call TI	Call TI	-40 to 85		
LM4040A82IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4NLU	Samples
LM4040A82IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4NLU	Samples
LM4040A82IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4NLU	Samples
LM4040A82IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	PDU	Samples
LM4040B10IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4NRU	Samples
LM4040B10IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4NRU	Samples
LM4040B10IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4NRU	Samples
LM4040B10IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	PJU	Samples
LM4040B10ILP	PREVIEW	TO-92	LP	3	1000	TBD	Call TI	Call TI	-40 to 85		
LM4040B10ILPR	PREVIEW	TO-92	LP	3	2000	TBD	Call TI	Call TI	-40 to 85		
LM4040B20IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4MDU	Samples
LM4040B20IDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4MDU	Samples
LM4040B20IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4MDU	Samples
LM4040B20IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4MDU	Samples
LM4040B20IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	MTU	Samples
LM4040B25IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4NH3 ~ 4NHU)	Samples
LM4040B25IDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4NH3 ~ 4NHU)	Samples

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
LM4040B25IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4NH3 ~ 4NHU)	Samples
LM4040B25IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4NH3 ~ 4NHU)	Samples
LM4040B25IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	P3U	Samples
LM4040B25IDCKRG4	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	P3U	Samples
LM4040B25ILP	PREVIEW	TO-92	LP	3	1000	TBD	Call TI	Call TI	-40 to 85		
LM4040B25ILPR	PREVIEW	TO-92	LP	3	2000	TBD	Call TI	Call TI	-40 to 85		
LM4040B30IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M7U	Samples
LM4040B30IDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M7U	Samples
LM4040B30IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M7U	Samples
LM4040B30IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	PAU	Samples
LM4040B30IDCKRG4	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	PAU	Samples
LM4040B30IDCKT	PREVIEW	SC70	DCK	5	250	TBD	Call TI	Call TI	-40 to 85		
LM4040B30ILP	PREVIEW	TO-92	LP	3	1000	TBD	Call TI	Call TI	-40 to 85		
LM4040B30ILPM	PREVIEW	TO-92	LP	3	2000	TBD	Call TI	Call TI	-40 to 85		
LM4040B30ILPR	PREVIEW	TO-92	LP	3	2000	TBD	Call TI	Call TI	-40 to 85		
LM4040B41IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M3U	Samples
LM4040B41IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M3U	Samples
LM4040B41IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M3U	Samples
LM4040B41IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	P5U	Samples
LM4040B41ILP	PREVIEW	TO-92	LP	3	1000	TBD	Call TI	Call TI	-40 to 85		
LM4040B41ILPR	PREVIEW	TO-92	LP	3	2000	TBD	Call TI	Call TI	-40 to 85		

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
LM4040B50IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4NB3 ~ 4NBU)	Samples
LM4040B50IDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4NB3 ~ 4NBU)	Samples
LM4040B50IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4NB3 ~ 4NBU)	Samples
LM4040B50IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	MXU	Samples
LM4040B50ILP	PREVIEW	TO-92	LP	3	1000	TBD	Call TI	Call TI	-40 to 85		
LM4040B50ILPR	PREVIEW	TO-92	LP	3	2000	TBD	Call TI	Call TI	-40 to 85		
LM4040B82IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4NMU	Samples
LM4040B82IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	PEU	Samples
LM4040C10IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4NSU	Samples
LM4040C10IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4NSU	Samples
LM4040C10IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4NSU	Samples
LM4040C10IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	PKU	Samples
LM4040C10ILP	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC10I	Samples
LM4040C10ILPE3	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC10I	Samples
LM4040C10ILPR	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC10I	Samples
LM4040C10ILPRE3	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC10I	Samples
LM4040C20IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4MQU	Samples
LM4040C20IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4MQU	Samples
LM4040C20IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4MQU	Samples

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
LM4040C20IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	MVU	Samples
LM4040C20ILP	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC20I	Samples
LM4040C20ILPE3	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC20I	Samples
LM4040C20ILPR	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC20I	Samples
LM4040C20QDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	4MWU	Samples
LM4040C20QDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	4MWU	Samples
LM4040C20QDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	4MWU	Samples
LM4040C20QDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	4MWU	Samples
LM4040C25IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4MU3 ~ 4MUU)	Samples
LM4040C25IDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4MU3 ~ 4MUU)	Samples
LM4040C25IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4MU3 ~ 4MUU)	Samples
LM4040C25IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4MU3 ~ 4MUU)	Samples
LM4040C25IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	MUU	Samples
LM4040C25IDCKT	ACTIVE	SC70	DCK	5	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	MUU	Samples
LM4040C25IDCKTE4	ACTIVE	SC70	DCK	5	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	MUU	Samples
LM4040C25IDCKTG4	ACTIVE	SC70	DCK	5	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	MUU	Samples
LM4040C25ILP	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC25I	Samples
LM4040C25ILPE3	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC25I	Samples

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
LM4040C25ILPR	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC25I	Samples
LM4040C25ILPRE3	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC25I	Samples
LM4040C25QDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	(4MA3 ~ 4MAU)	Samples
LM4040C25QDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	(4MA3 ~ 4MAU)	Samples
LM4040C25QDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	(4MA3 ~ 4MAU)	Samples
LM4040C25QDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	(4MA3 ~ 4MAU)	Samples
LM4040C30IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M8U	Samples
LM4040C30IDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M8U	Samples
LM4040C30IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M8U	Samples
LM4040C30IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M8U	Samples
LM4040C30IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	PBU	Samples
LM4040C30IDCKT	PREVIEW	SC70	DCK	5	250	TBD	Call TI	Call TI	-40 to 85		
LM4040C30ILP	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC30I	Samples
LM4040C30ILPE3	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC30I	Samples
LM4040C30ILPM	PREVIEW	TO-92	LP	3	2000	TBD	Call TI	Call TI	-40 to 85		
LM4040C30ILPR	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC30I	Samples
LM4040C30QDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	4NJU	Samples
LM4040C30QDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	4NJU	Samples
LM4040C41IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M4U	Samples

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
LM4040C41IDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M4U	Samples
LM4040C41IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M4U	Samples
LM4040C41IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M4U	Samples
LM4040C41IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	P6U	Samples
LM4040C41IDCKRE4	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	P6U	Samples
LM4040C41IDCKRG4	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	P6U	Samples
LM4040C41ILP	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC41I	Samples
LM4040C41ILPE3	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC41I	Samples
LM4040C41ILPR	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC41I	Samples
LM4040C50IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4NC3 ~ 4NCU)	Samples
LM4040C50IDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4NC3 ~ 4NCU)	Samples
LM4040C50IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4NC3 ~ 4NCU)	Samples
LM4040C50IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4NC3 ~ 4NCU)	Samples
LM4040C50IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	MZU	Samples
LM4040C50ILP	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC50I	Samples
LM4040C50ILPE3	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC50I	Samples
LM4040C50ILPR	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC50I	Samples
LM4040C50QDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	(4NE3 ~ 4NEU)	Samples

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
LM4040C50QDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	(4NE3 ~ 4NEU)	Samples
LM4040C50QDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	(4NE3 ~ 4NEU)	Samples
LM4040C82IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4NNU	Samples
LM4040C82IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	PFU	Samples
LM4040C82ILP	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC82I	Samples
LM4040C82ILPR	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFC82I	Samples
LM4040D20IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4MVU	Samples
LM4040D20IDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4MVU	Samples
LM4040D20IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4MVU	Samples
LM4040D20IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4MVU	Samples
LM4040D20IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	MWU	Samples
LM4040D20IDCKRE4	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	MWU	Samples
LM4040D20IDCKRG4	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	MWU	Samples
LM4040D20ILPR	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD20I	Samples
LM4040D20ILPRE3	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD20I	Samples
LM4040D20QDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	4MYU	Samples
LM4040D20QDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	4MYU	Samples
LM4040D20QDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	4MYU	Samples

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
LM4040D25IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4ME3 ~ 4MEU)	Samples
LM4040D25IDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4ME3 ~ 4MEU)	Samples
LM4040D25IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4ME3 ~ 4MEU)	Samples
LM4040D25IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4ME3 ~ 4MEU)	Samples
LM4040D25IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	MEU	Samples
LM4040D25IDCKRG4	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	MEU	Samples
LM4040D25IDCKT	ACTIVE	SC70	DCK	5	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	MEU	Samples
LM4040D25IDCKTG4	ACTIVE	SC70	DCK	5	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	MEU	Samples
LM4040D25ILP	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD25I	Samples
LM4040D25ILPE3	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD25I	Samples
LM4040D25ILPR	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD25I	Samples
LM4040D25QDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	(4MB3 ~ 4MBU)	Samples
LM4040D25QDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	(4MB3 ~ 4MBU)	Samples
LM4040D25QDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	(4MB3 ~ 4MBU)	Samples
LM4040D25QDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	(4MB3 ~ 4MBU)	Samples
LM4040D30IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M9U	Samples
LM4040D30IDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M9U	Samples
LM4040D30IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M9U	Samples

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
LM4040D30IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M9U	Samples
LM4040D30IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	PCU	Samples
LM4040D30IDCKT	PREVIEW	SC70	DCK	5	250	TBD	Call TI	Call TI	-40 to 85		
LM4040D30ILP	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD30I	Samples
LM4040D30ILPE3	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD30I	Samples
LM4040D30ILPM	PREVIEW	TO-92	LP	3	2000	TBD	Call TI	Call TI	-40 to 85		
LM4040D30ILPR	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD30I	Samples
LM4040D30ILPRE3	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD30I	Samples
LM4040D30QDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	4NKU	Samples
LM4040D30QDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	4NKU	Samples
LM4040D41IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M5U	Samples
LM4040D41IDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M5U	Samples
LM4040D41IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M5U	Samples
LM4040D41IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4M5U	Samples
LM4040D41IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	P7U	Samples
LM4040D41ILP	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD41I	Samples
LM4040D41ILPE3	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD41I	Samples
LM4040D41ILPR	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD41I	Samples
LM4040D41ILPRE3	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD41I	Samples

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
LM4040D50IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4ND3 ~ 4NDU)	Samples
LM4040D50IDBZRG4	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4ND3 ~ 4NDU)	Samples
LM4040D50IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4ND3 ~ 4NDU)	Samples
LM4040D50IDBZTG4	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	(4ND3 ~ 4NDU)	Samples
LM4040D50IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	M4U	Samples
LM4040D50IDCKRG4	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	M4U	Samples
LM4040D50ILP	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD50I	Samples
LM4040D50ILPE3	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD50I	Samples
LM4040D50ILPR	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD50I	Samples
LM4040D50ILPRE3	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD50I	Samples
LM4040D50QDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	(4NF3 ~ 4NFU)	Samples
LM4040D50QDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 125	(4NF3 ~ 4NFU)	Samples
LM4040D82IDBZR	ACTIVE	SOT-23	DBZ	3	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4NPU	Samples
LM4040D82IDBZT	ACTIVE	SOT-23	DBZ	3	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	4NPU	Samples
LM4040D82IDCKR	ACTIVE	SC70	DCK	5	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	-40 to 85	PGU	Samples
LM4040D82ILP	ACTIVE	TO-92	LP	3	1000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD82I	Samples
LM4040D82ILPR	ACTIVE	TO-92	LP	3	2000	Pb-Free (RoHS)	CU SN	N / A for Pkg Type	-40 to 85	NFD82I	Samples

(1) The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.
LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.
NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.
PREVIEW: Device has been announced but is not in production. Samples may or may not be available.
OBSOLETE: TI has discontinued the production of the device.

(2) Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check http://www.ti.com/productcontent for the latest availability information and additional product content details.
TBD: The Pb-Free/Green conversion plan has not been defined.
Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.
Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.
Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

(3) MSL, Peak Temp. - The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

(6) Lead/Ball Finish - Orderable Devices may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead/Ball Finish values may wrap to two lines if the finish value exceeds the maximum column width.

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OTHER QUALIFIED VERSIONS OF LM4040C25 :

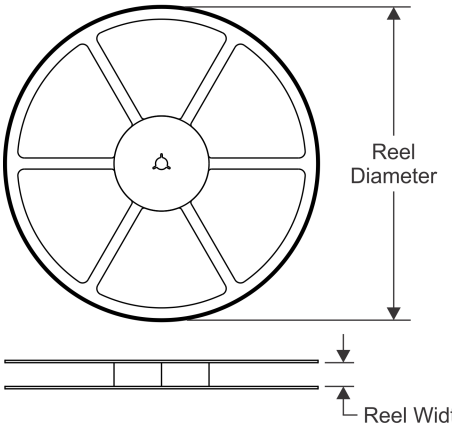
- Enhanced Product: LM4040C25-EP

NOTE: Qualified Version Definitions:

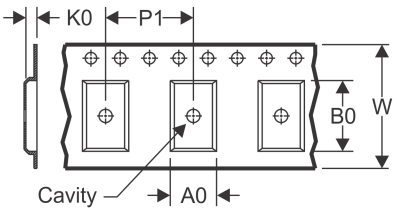
- Enhanced Product - Supports Defense, Aerospace and Medical Applications

TAPE AND REEL INFORMATION

REEL DIMENSIONS

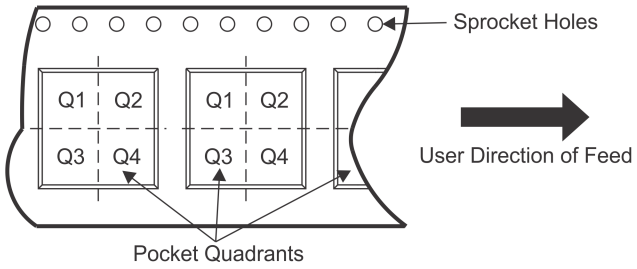


TAPE DIMENSIONS



A0	Dimension designed to accommodate the component width
B0	Dimension designed to accommodate the component length
K0	Dimension designed to accommodate the component thickness
W	Overall width of the carrier tape
P1	Pitch between successive cavity centers

QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



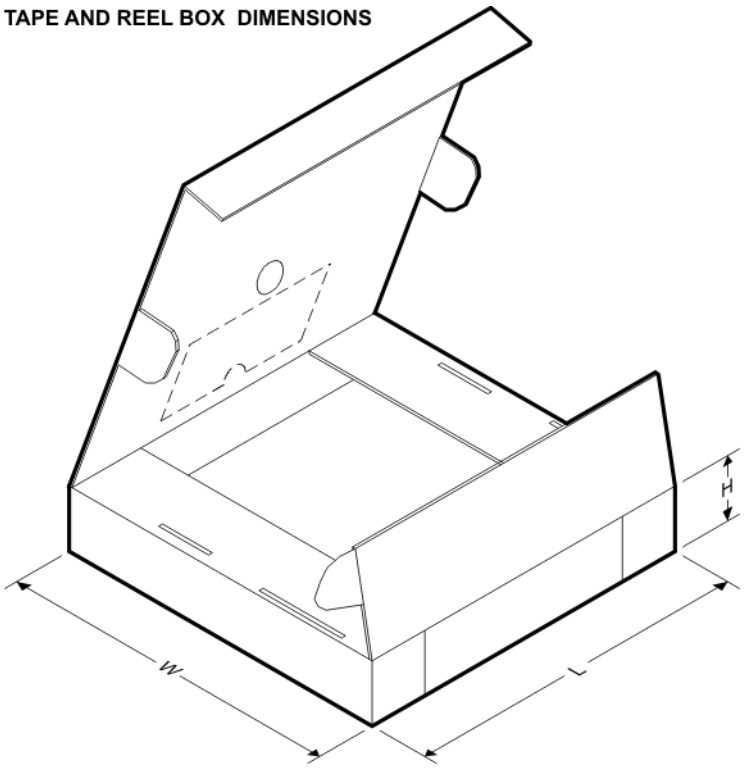
*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
LM4040A10IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040A10IDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040A10IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040A20IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040A20IDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040A20IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040A25IDBZR	SOT-23	DBZ	3	3000	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040A25IDBZT	SOT-23	DBZ	3	250	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040A25IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040A30IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040A30IDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040A30IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040A41IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040A41IDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040A41IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040A50IDBZR	SOT-23	DBZ	3	3000	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040A50IDBZT	SOT-23	DBZ	3	250	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040A50IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
LM4040A82IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040A82IDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040A82IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040B10IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040B10IDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040B10IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040B20IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040B20IDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040B20IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040B25IDBZR	SOT-23	DBZ	3	3000	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040B25IDBZT	SOT-23	DBZ	3	250	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040B25IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040B30IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040B30IDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040B30IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040B41IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040B41IDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040B41IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040B50IDBZR	SOT-23	DBZ	3	3000	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040B50IDBZT	SOT-23	DBZ	3	250	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040B50IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040B82IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040B82IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040C10IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040C10IDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040C10IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040C20IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040C20IDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040C20IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040C20QDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040C20QDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040C25IDBZR	SOT-23	DBZ	3	3000	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040C25IDBZT	SOT-23	DBZ	3	250	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040C25IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040C25IDCKT	SC70	DCK	5	250	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040C25QDBZR	SOT-23	DBZ	3	3000	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040C25QDBZT	SOT-23	DBZ	3	250	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040C30IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040C30IDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040C30IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040C30QDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040C30QDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040C41IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
LM4040C41IDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040C41IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040C50IDBZR	SOT-23	DBZ	3	3000	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040C50IDBZT	SOT-23	DBZ	3	250	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040C50IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040C50QDBZR	SOT-23	DBZ	3	3000	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040C50QDBZT	SOT-23	DBZ	3	250	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040C82IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040C82IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040D20IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040D20IDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040D20IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040D20QDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040D20QDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040D25IDBZR	SOT-23	DBZ	3	3000	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040D25IDBZT	SOT-23	DBZ	3	250	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040D25IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040D25IDCKT	SC70	DCK	5	250	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040D25QDBZR	SOT-23	DBZ	3	3000	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040D25QDBZT	SOT-23	DBZ	3	250	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040D30IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040D30IDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040D30IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040D30QDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040D41IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040D41IDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040D41IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040D50IDBZR	SOT-23	DBZ	3	3000	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040D50IDBZT	SOT-23	DBZ	3	250	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040D50IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3
LM4040D50QDBZR	SOT-23	DBZ	3	3000	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040D50QDBZT	SOT-23	DBZ	3	250	178.0	9.2	3.08	2.8	1.27	4.0	8.0	Q3
LM4040D82IDBZR	SOT-23	DBZ	3	3000	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040D82IDBZT	SOT-23	DBZ	3	250	179.0	8.4	3.15	2.95	1.22	4.0	8.0	Q3
LM4040D82IDCKR	SC70	DCK	5	3000	179.0	8.4	2.2	2.5	1.2	4.0	8.0	Q3

TAPE AND REEL BOX DIMENSIONS



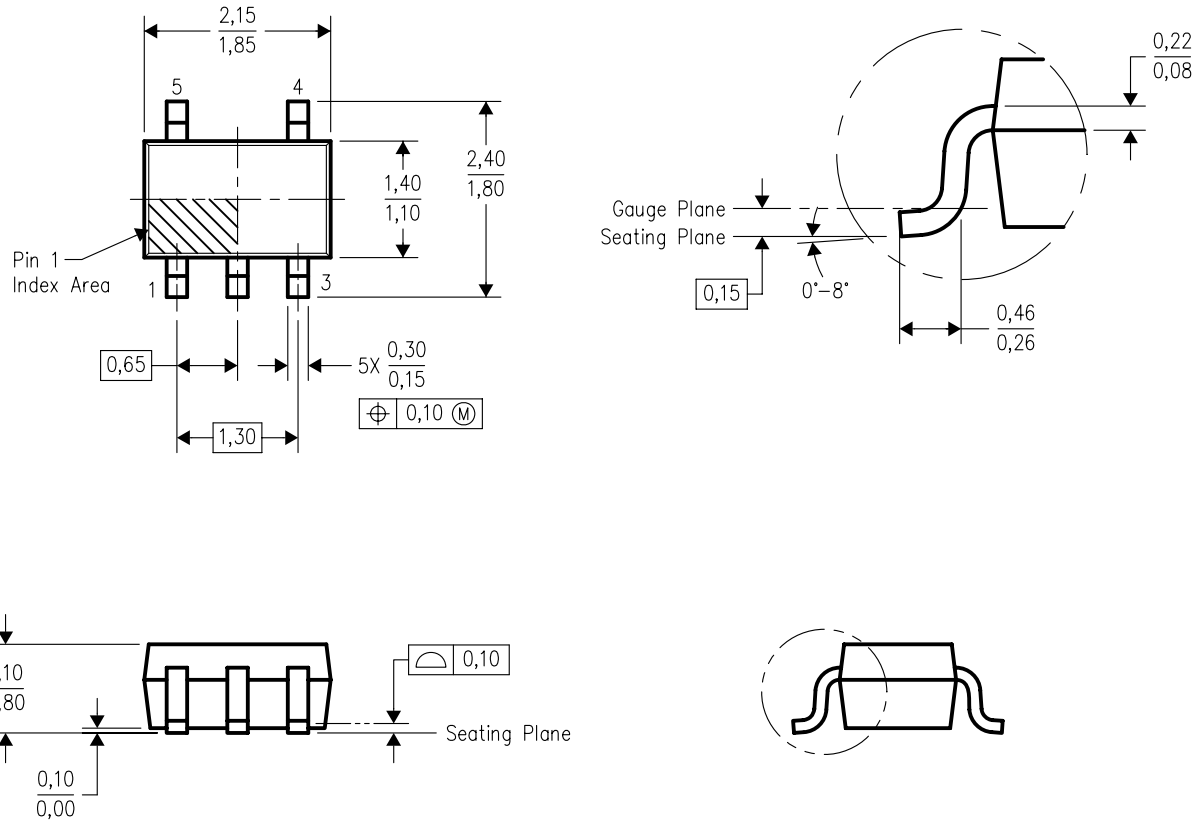
*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
LM4040A10IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040A10IDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040A10IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040A20IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040A20IDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040A20IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040A25IDBZR	SOT-23	DBZ	3	3000	180.0	180.0	18.0
LM4040A25IDBZT	SOT-23	DBZ	3	250	180.0	180.0	18.0
LM4040A25IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040A30IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040A30IDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040A30IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040A41IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040A41IDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040A41IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040A50IDBZR	SOT-23	DBZ	3	3000	180.0	180.0	18.0
LM4040A50IDBZT	SOT-23	DBZ	3	250	180.0	180.0	18.0
LM4040A50IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040A82IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040A82IDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
LM4040A82IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040B10IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040B10IDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040B10IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040B20IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040B20IDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040B20IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040B25IDBZR	SOT-23	DBZ	3	3000	180.0	180.0	18.0
LM4040B25IDBZT	SOT-23	DBZ	3	250	180.0	180.0	18.0
LM4040B25IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040B30IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040B30IDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040B30IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040B41IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040B41IDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040B41IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040B50IDBZR	SOT-23	DBZ	3	3000	180.0	180.0	18.0
LM4040B50IDBZT	SOT-23	DBZ	3	250	180.0	180.0	18.0
LM4040B50IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040B82IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040B82IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040C10IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040C10IDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040C10IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040C20IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040C20IDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040C20IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040C20QDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040C20QDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040C25IDBZR	SOT-23	DBZ	3	3000	180.0	180.0	18.0
LM4040C25IDBZT	SOT-23	DBZ	3	250	180.0	180.0	18.0
LM4040C25IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040C25IDCKT	SC70	DCK	5	250	203.0	203.0	35.0
LM4040C25QDBZR	SOT-23	DBZ	3	3000	180.0	180.0	18.0
LM4040C25QDBZT	SOT-23	DBZ	3	250	180.0	180.0	18.0
LM4040C30IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040C30IDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040C30IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040C30QDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040C30QDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040C41IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040C41IDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040C41IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040C50IDBZR	SOT-23	DBZ	3	3000	180.0	180.0	18.0

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
LM4040C50IDBZT	SOT-23	DBZ	3	250	180.0	180.0	18.0
LM4040C50IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040C50QDBZR	SOT-23	DBZ	3	3000	180.0	180.0	18.0
LM4040C50QDBZT	SOT-23	DBZ	3	250	180.0	180.0	18.0
LM4040C82IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040C82IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040D20IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040D20IDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040D20IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040D20QDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040D20QDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040D25IDBZR	SOT-23	DBZ	3	3000	180.0	180.0	18.0
LM4040D25IDBZT	SOT-23	DBZ	3	250	180.0	180.0	18.0
LM4040D25IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040D25IDCKT	SC70	DCK	5	250	203.0	203.0	35.0
LM4040D25QDBZR	SOT-23	DBZ	3	3000	180.0	180.0	18.0
LM4040D25QDBZT	SOT-23	DBZ	3	250	180.0	180.0	18.0
LM4040D30IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040D30IDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040D30IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040D30QDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040D41IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040D41IDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040D41IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040D50IDBZR	SOT-23	DBZ	3	3000	180.0	180.0	18.0
LM4040D50IDBZT	SOT-23	DBZ	3	250	180.0	180.0	18.0
LM4040D50IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0
LM4040D50QDBZR	SOT-23	DBZ	3	3000	180.0	180.0	18.0
LM4040D50QDBZT	SOT-23	DBZ	3	250	180.0	180.0	18.0
LM4040D82IDBZR	SOT-23	DBZ	3	3000	203.0	203.0	35.0
LM4040D82IDBZT	SOT-23	DBZ	3	250	203.0	203.0	35.0
LM4040D82IDCKR	SC70	DCK	5	3000	203.0	203.0	35.0

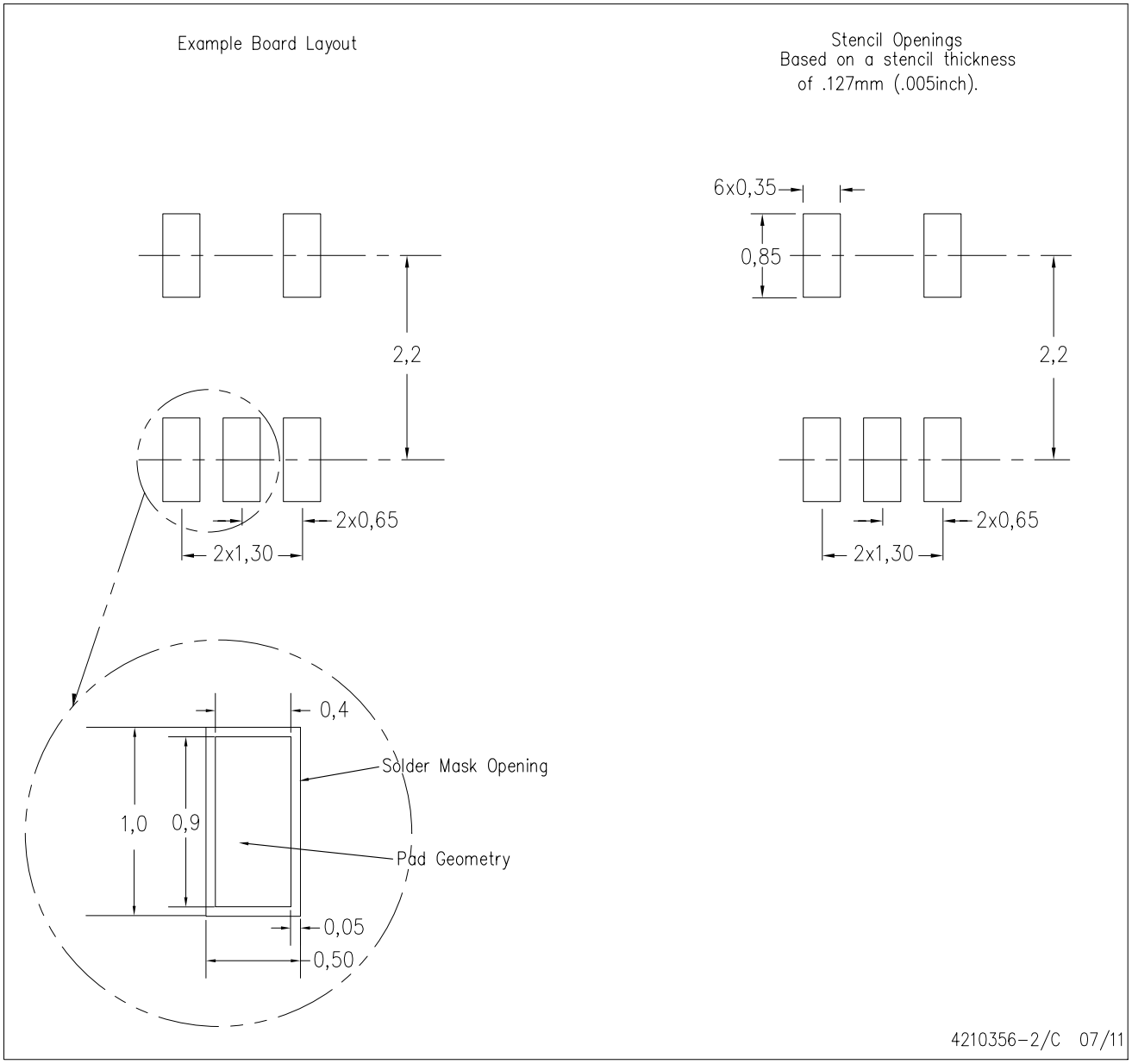
DCK (R–PDSO–G5) PLASTIC SMALL–OUTLINE PACKAGE



4093553–3/G 01/2007

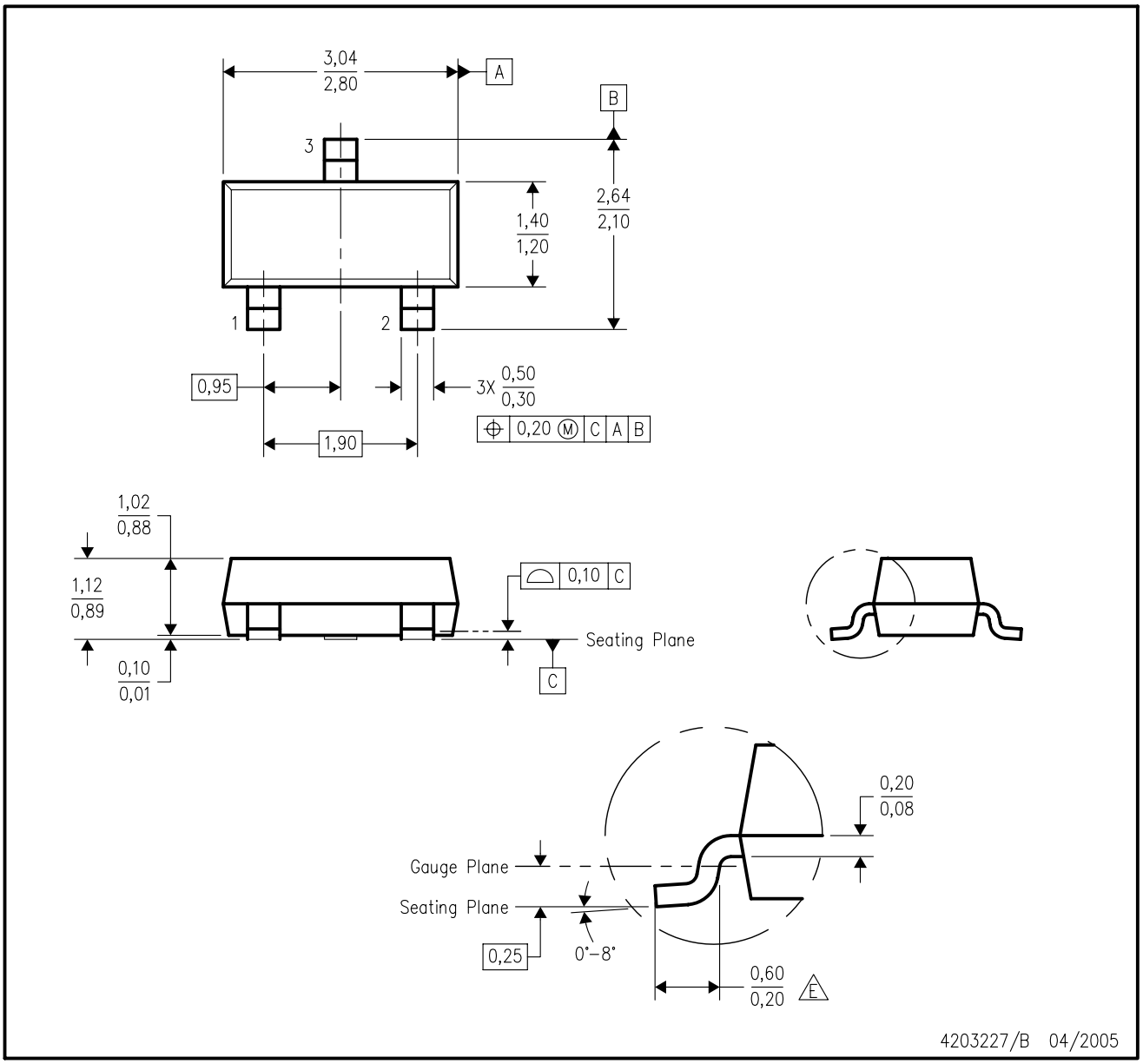
NOTES:
A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Body dimensions do not include mold flash or protrusion. Mold flash and protrusion shall not exceed 0.15 per side.
D. Falls within JEDEC MO–203 variation AA.

DCK (R–PDSO–G5) PLASTIC SMALL OUTLINE



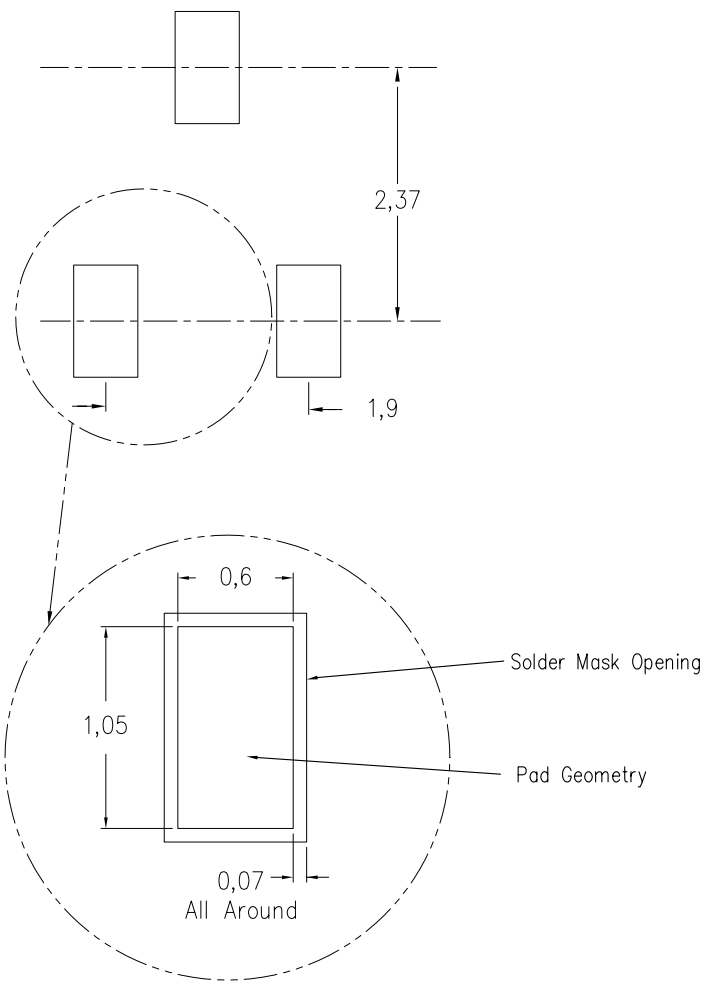
NOTES:
A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Customers should place a note on the circuit board fabrication drawing not to alter the center solder mask defined pad.
D. Publication IPC–7351 is recommended for alternate designs.
E. Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact their board assembly site for stencil design recommendations. Example stencil design based on a 50% volumetric metal load solder paste. Refer to IPC–7525 for other stencil recommendations.

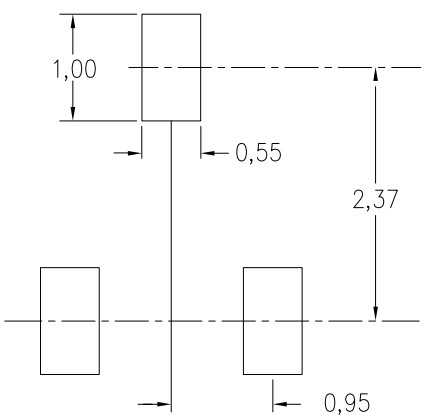
DBZ (R–PDSO–G3) PLASTIC SMALL–OUTLINE



NOTES:
A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M–1994.
B. This drawing is subject to change without notice.
C. Lead dimensions are inclusive of plating.
D. Body dimensions are exclusive of mold flash and protrusion. Mold flash and protrusion not to exceed 0.25 per side.
E. Falls within JEDEC TO–236 variation AB, except minimum foot length.

DBZ (R–PDSO–G3) PLASTIC SMALL OUTLINE

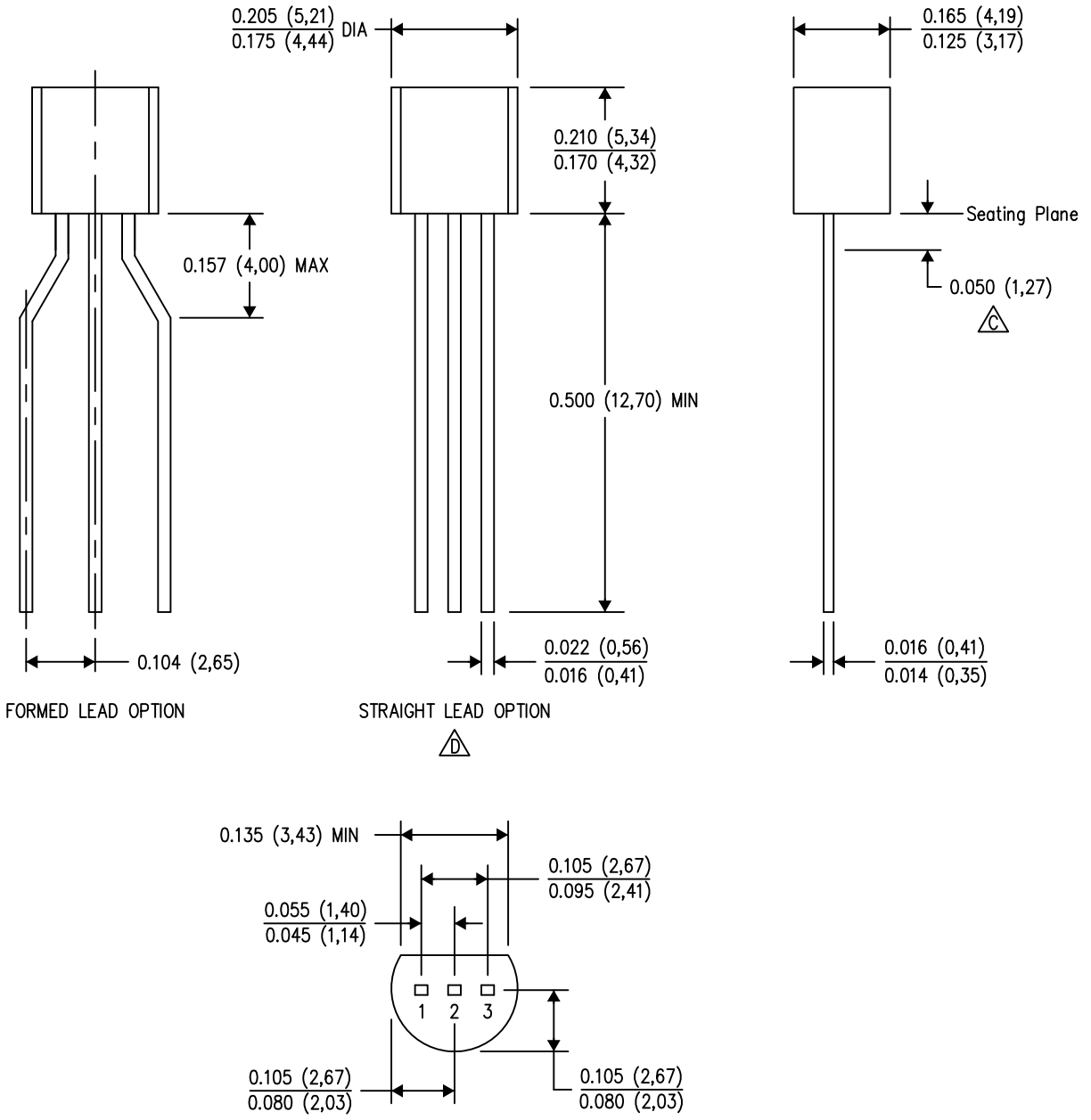




4212057/A 08/11

NOTES:
A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Customers should place a note on the circuit board fabrication drawing not to alter the center solder mask defined pad.
D. Publication IPC–7351 is recommended for alternate designs.
E. Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact their board assembly site for stencil design recommendations. Example stencil design based on a 50% volumetric metal load solder paste. Refer to IPC–7525 for other stencil recommendations.

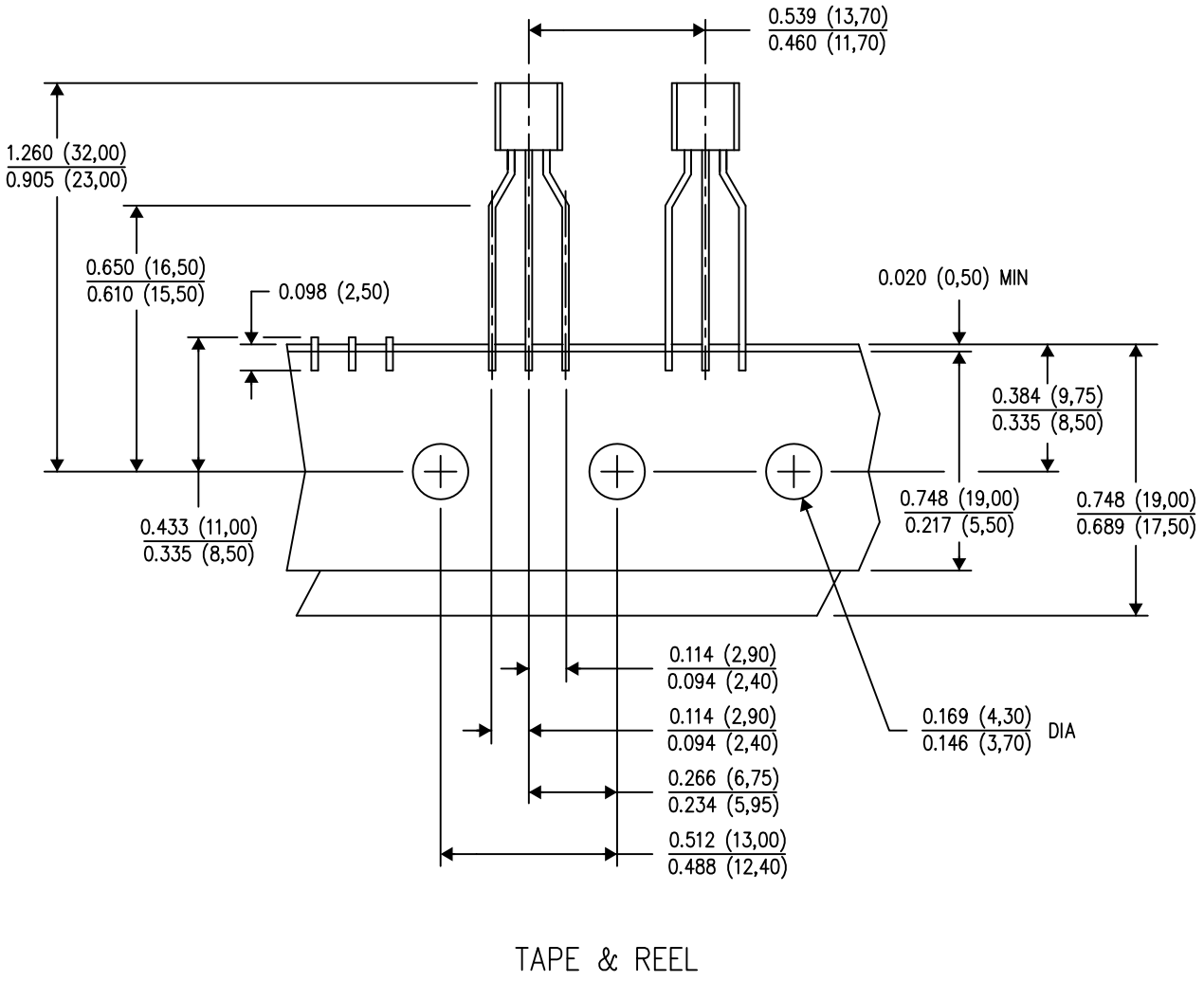
LP (O–PBCY–W3) PLASTIC CYLINDRICAL PACKAGE



4040001–2/E 08/13

NOTES:
A. All linear dimensions are in inches (millimeters).
B. This drawing is subject to change without notice.
C. Lead dimensions are not controlled within this area.
D. Falls within JEDEC TO–226 Variation AA (TO–226 replaces TO–92).
E. Shipping Method:
Straight lead option available in bulk pack only.
Formed lead option available in tape & reel or ammo pack.
Specific products can be offered in limited combinations of shipping mediums and lead options.
Consult product folder for more information on available options.

LP (O–PBCY–W3) PLASTIC CYLINDRICAL PACKAGE



NOTES:
A. All linear dimensions are in inches (millimeters).
B. This drawing is subject to change without notice.
C. Tape and Reel information for the Formed Lead Option package.

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