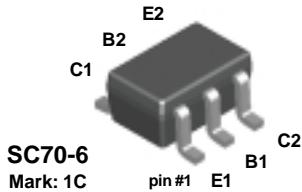


BC847S



NOTE: The pinouts are symmetrical; pin 1 and pin 4 are interchangeable. Units inside the carrier can be of either orientation and will not affect the functionality of the device.

NPN Multi-Chip General Purpose Amplifier

This device is designed for general purpose amplifier applications at collector currents to 200 mA. Sourced from Process 07.

Absolute Maximum Ratings*

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	45	V
V_{CES}	Collector-Base Voltage	50	V
V_{CBO}	Collector-Base Voltage	50	V
V_{EBO}	Emitter-Base Voltage	6.0	V
I_C	Collector Current - Continuous	200	mA
T_J, T_{stg}	Operating and Storage Junction Temperature Range	-55 to +150	°C

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Characteristic	Max	Units
		BC847S	
P_D	Total Device Dissipation Derate above 25°C	300 2.4	mW mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	415	°C/W

NPN Multi-Chip General Purpose Amplifier

(continued)

BC847S

Electrical Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
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OFF CHARACTERISTICS

$V_{(\text{BR})\text{CEO}}$	Collector-Emitter Breakdown Voltage	$I_C = 10 \text{ mA}, I_B = 0$	45			V
$V_{(\text{BR})\text{CES}}$	Collector-Base Breakdown Voltage	$I_C = 10 \mu\text{A}, I_E = 0$	50			V
$V_{(\text{BR})\text{CBO}}$	Collector-Base Breakdown Voltage	$I_C = 10 \mu\text{A}, I_E = 0$	50			V
$V_{(\text{BR})\text{EBO}}$	Emitter-Base Breakdown Voltage	$I_E = 10 \mu\text{A}, I_C = 0$	6.0			V
I_{CBO}	Collector-Cutoff Current	$V_{\text{CB}} = 30 \text{ V}, I_E = 0$ $V_{\text{CB}} = 30 \text{ V}, I_E = 0, T_A = 150^\circ\text{C}$			15 5.0	nA μA

ON CHARACTERISTICS

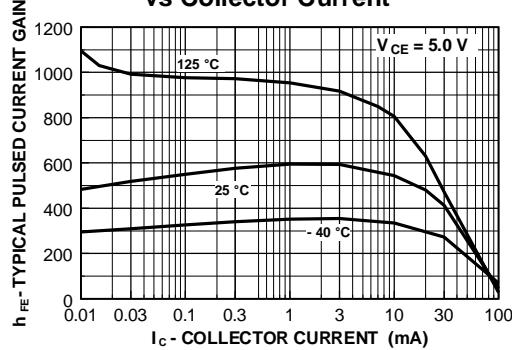
h_{FE}	DC Current Gain	$I_C = 2.0 \text{ mA}, V_{\text{CE}} = 5.0 \text{ V}$	110		630	
$V_{\text{CE}(\text{sat})}$	Collector-Emitter Saturation Voltage	$I_C = 10 \text{ mA}, I_B = 0.5 \text{ mA}$ $I_C = 100 \text{ mA}, I_B = 5.0 \text{ mA}$			0.25 0.65	V V
$V_{\text{BE}(\text{on})}$	Base-Emitter ON Voltage	$I_C = 2.0 \text{ mA}, V_{\text{CE}} = 5.0 \text{ mA}$ $I_C = 10 \text{ mA}, V_{\text{CE}} = 5.0 \text{ mA}$	0.58		0.7 0.77	V V

SMALL SIGNAL CHARACTERISTICS

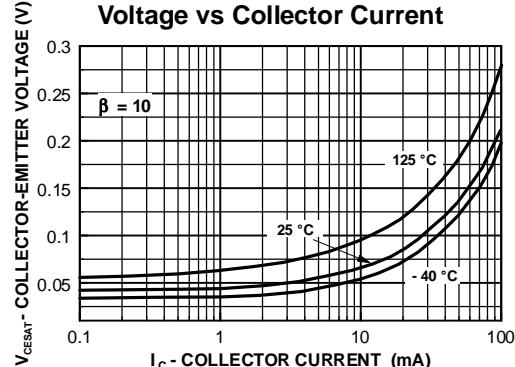
f_T	Current Gain - Bandwidth Product	$I_C = 20 \text{ mA}, V_{\text{CE}} = 5.0, f = 100 \text{ mHz}$		200		MHz
C_{obo}	Output Capacitance	$V_{\text{CB}} = 10 \text{ V}, f = 1.0 \text{ MHz}$		2.0		pF

Typical Characteristics

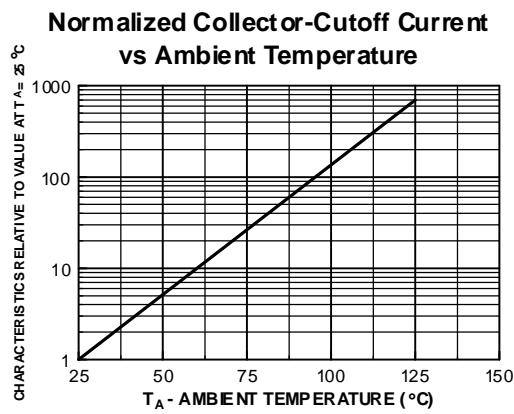
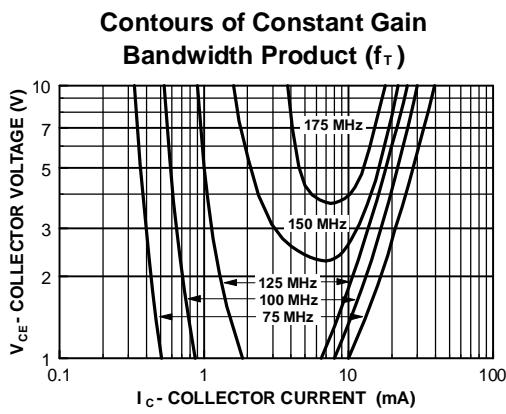
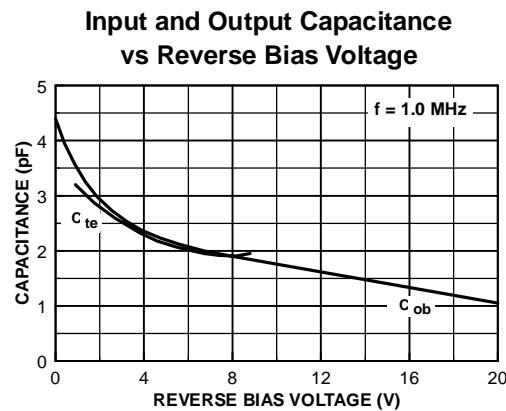
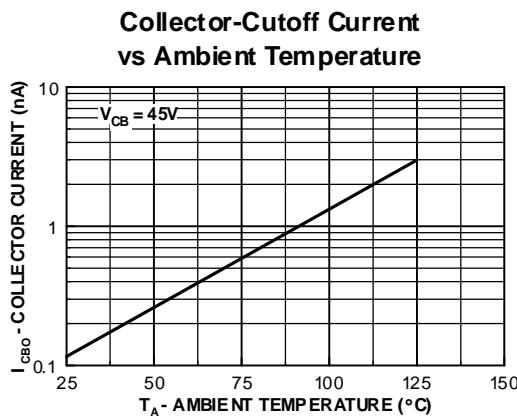
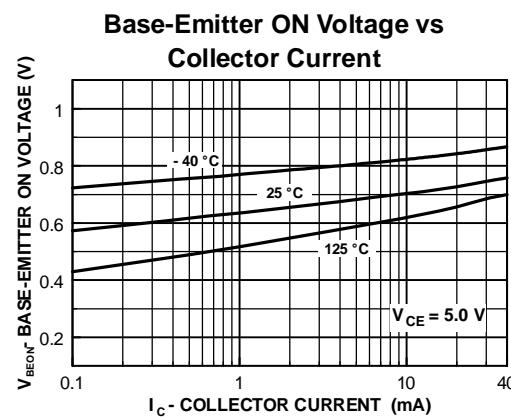
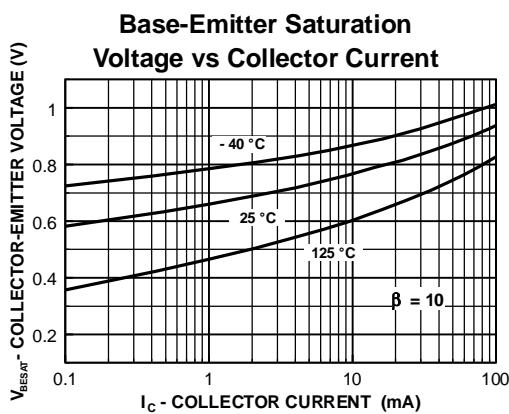
Typical Pulsed Current Gain
vs Collector Current



Collector-Emitter Saturation
Voltage vs Collector Current



Typical Characteristics



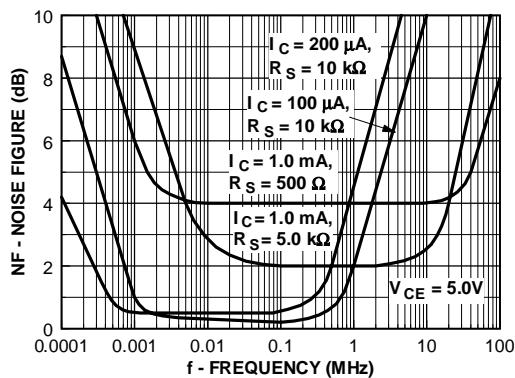
NPN Multi-Chip General Purpose Amplifier

(continued)

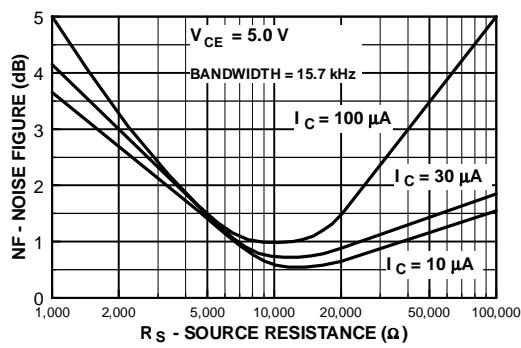
BC847S

Typical Characteristics (continued)

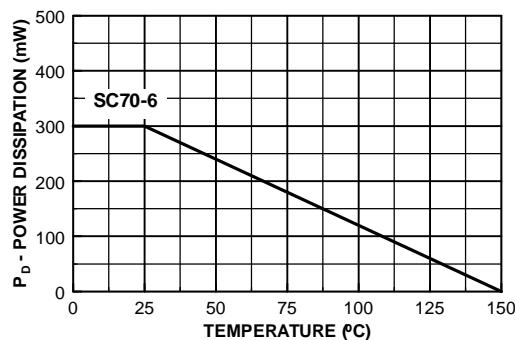
Noise Figure vs Frequency



Wideband Noise Frequency vs Source Resistance



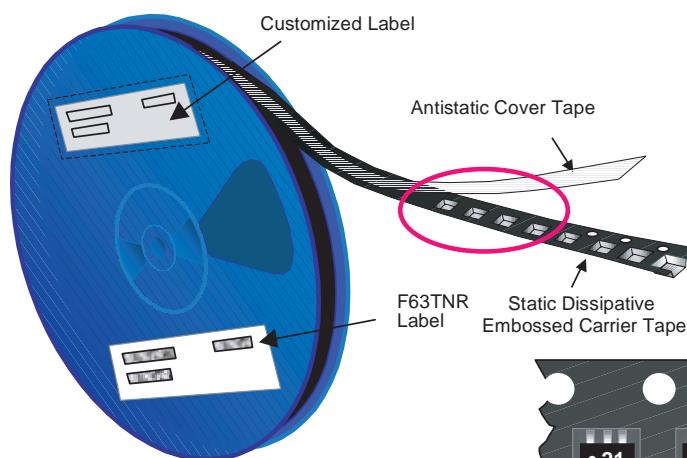
Power Dissipation vs Ambient Temperature



SC70-6 Tape and Reel Data

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SC70-6 Packaging Configuration: Figure 1.0

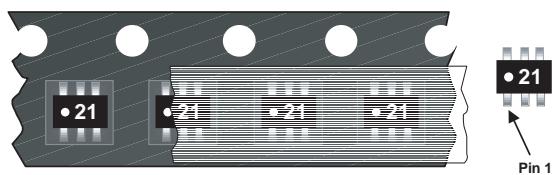


SC70-6 Packaging Information		
Packaging Option	Standard (no flow code)	D87Z
Packaging type	TNR	TNR
Qty per Reel/Tube/Bag	3,000	10,000
Reel Size	7" Dia	13"
Box Dimension (mm)	184x187x47	343x343x64
Max qty per Box	9,000	30,000
Weight per unit (gm)	0.0055	0.0055
Weight per Reel (kg)	0.1140	0.3960
Note/Comments		

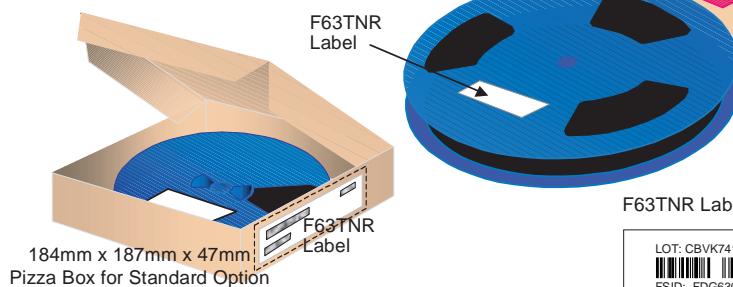
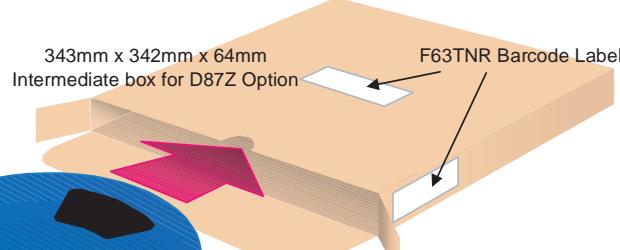
Packaging Description:

SC70-6 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 177cm diameter reel. The reels are dark blue in color and is made of polystyrene plastic (anti-static coated). Other option comes in 10,000 units per 13" or 330cm diameter reel. This and some other options are described in the Packaging Information table.

These full reels are individually barcode labeled and placed inside a pizza box (illustrated in figure 1.0) made of recyclable corrugated brown paper with a Fairchild logo printing. One pizza box contains three reels maximum. And these pizza boxes are placed inside a barcode labeled shipping box which comes in different sizes depending on the number of parts shipped.



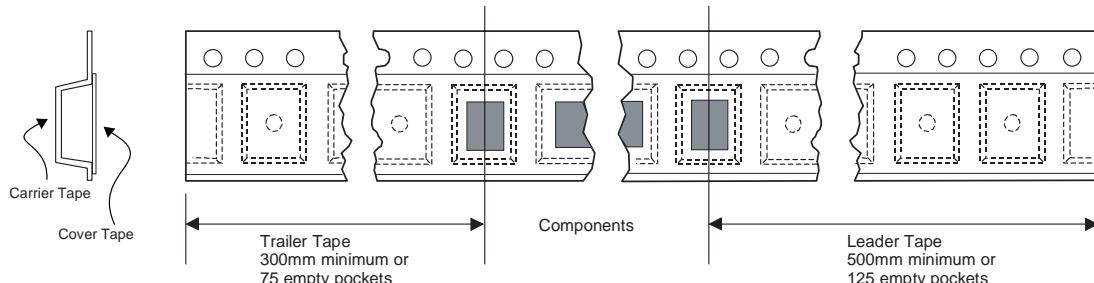
SC70-6 Unit Orientation



F63TNR Label sample

LOT: CBVK741B019	QTY: 3000
FSID: FDG6302P	SPEC:
D/C1: D9842	QTY1:
D/C2:	QTY2:
	SPEC REV:
	CPN:
	N/F: F
	(F63TNR)3

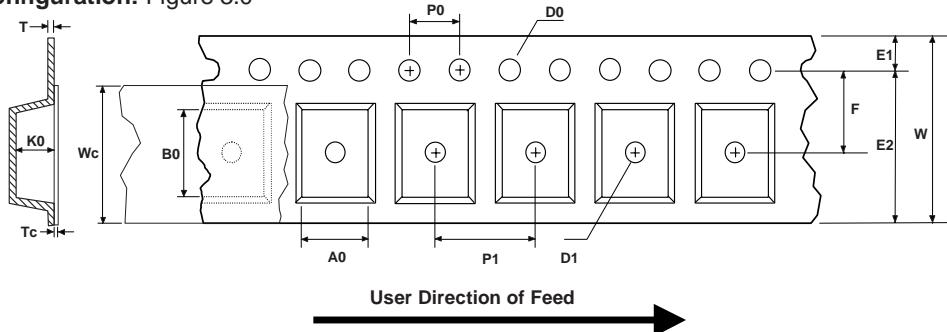
SC70-6 Tape Leader and Trailer Configuration: Figure 2.0



SC70-6 Tape and Reel Data, continued

SC70-6 Embossed Carrier Tape

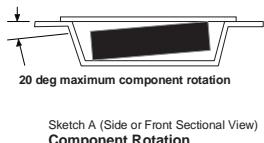
Configuration: Figure 3.0



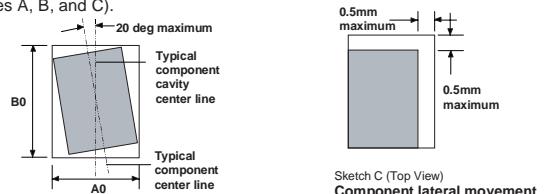
Dimensions are in millimeter

Pkg type	A0	B0	W	D0	D1	E1	E2	F	P1	P0	K0	T	Wc	Tc
SC70-6 (8mm)	2.24 +/-0.10	2.34 +/-0.10	8.0 +/-0.3	1.55 +/-0.05	1.125 +/-0.125	1.75 +/-0.10	6.25 min	3.50 +/-0.05	4.0 +/-0.1	4.0 +/-0.1	1.20 +/-0.10	0.255 +/-0.150	5.2 +/-0.3	0.06 +/-0.02

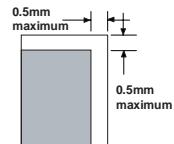
Notes: A0, B0, and K0 dimensions are determined with respect to the EIA/Jedec RS-481 rotational and lateral movement requirements (see sketches A, B, and C).



Sketch A (Side or Front Sectional View)
Component Rotation

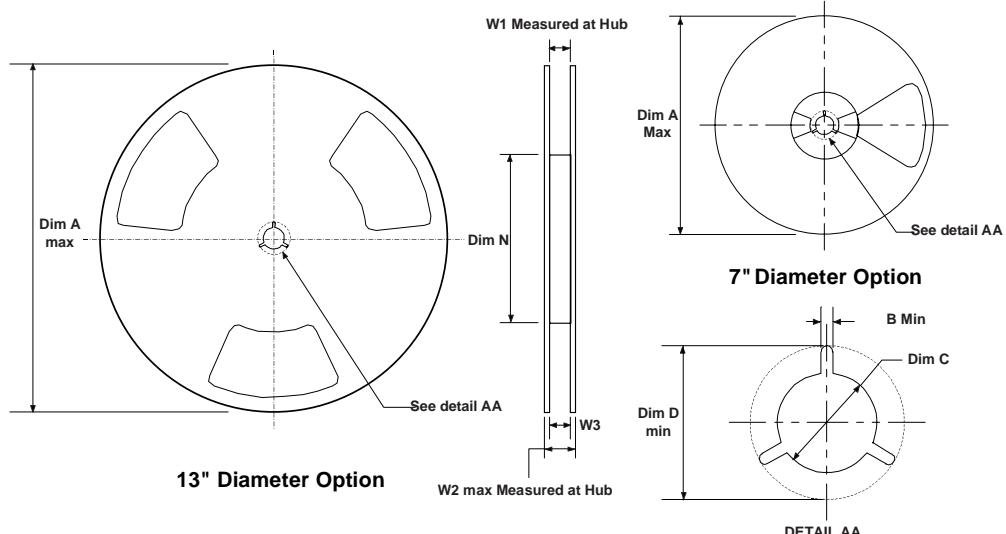


Sketch B (Top View)
Component Rotation



Sketch C (Top View)
Component lateral movement

SC70-6 Reel Configuration: Figure 4.0



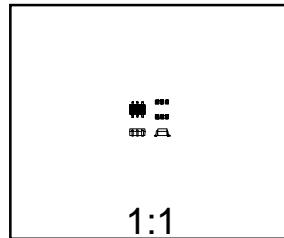
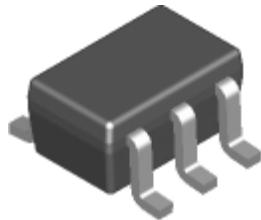
Dimensions are in inches and millimeters

Tape Size	Reel Option	Dim A	Dim B	Dim C	Dim D	Dim N	Dim W1	Dim W2	Dim W3 (LSL-USL)
8mm	7" Dia	7.00 177.8	0.059 1.5	0.512 +0.020/-0.008 13 +0.5/-0.2	0.795 20.2	2.165 55	0.331 +0.059/-0.000 8.4 +1.5/0	0.567 14.4	0.311 - 0.429 7.9 - 10.9
8mm	13" Dia	13.00 330	0.059 1.5	0.512 +0.020/-0.008 13 +0.5/-0.2	0.795 20.2	4.00 100	0.331 +0.059/-0.000 8.4 +1.5/0	0.567 14.4	0.311 - 0.429 7.9 - 10.9

SC70-6 Package Dimensions

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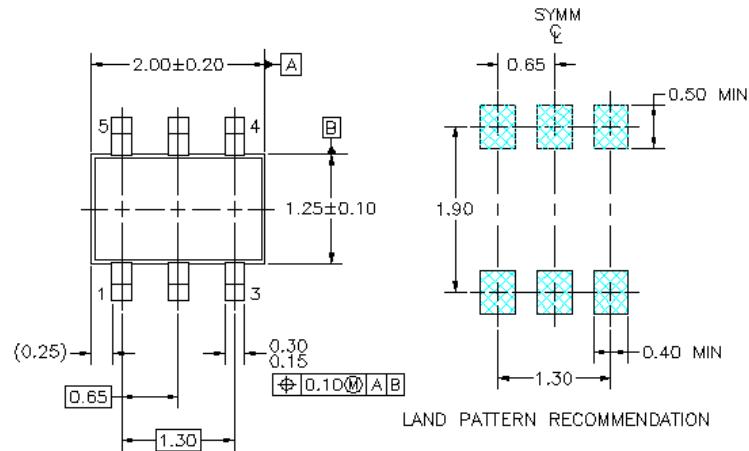
SC70-6 (FS PKG Code 76)



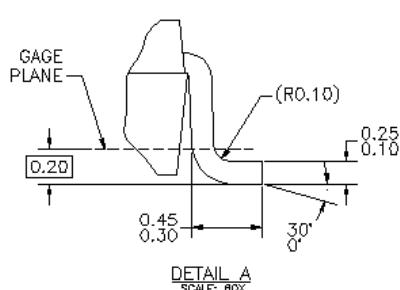
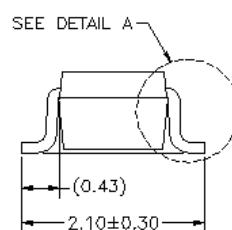
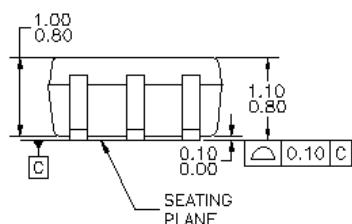
Scale 1:1 on letter size paper

Dimensions shown below are in:
inches [millimeters]

Part Weight per unit (gram): 0.0055



LAND PATTERN RECOMMENDATION



NOTES: UNLESS OTHERWISE SPECIFIED

- A) THIS PACKAGE CONFORMS TO EIAJ SC-86, 1996.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DIMENSIONS DO NOT INCLUDE BURRS OR MOLD FLASH.

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CoolFET TM	GTO TM	QS TM	UHC TM
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DOME TM	ISOPLANAR TM	Quiet Series TM	
E ² CMOS TM	MICROWIRE TM	SILENT SWITCHER [®]	
EnSigna TM	OPTOLOGIC TM	SMART START TM	
FACT TM	OPTOPLANAR TM	SuperSOT TM -3	
FACT Quiet Series TM	PACMAN TM	SuperSOT TM -6	
FAST [®]	POP TM	SuperSOT TM -8	

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