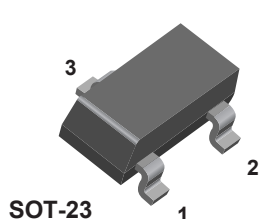
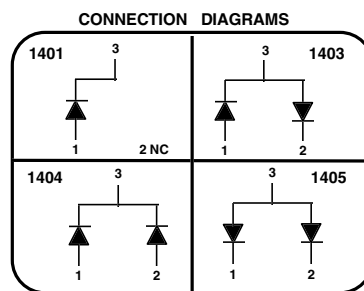


MMBD1401 / 1403 / 1404 / 1405



MARKING			
MMBD1401	29	MMBD1404	33
MMBD1403	32	MMBD1405	34



High Voltage General Purpose Diode

Sourced from Process 1H.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
W_{IV}	Working Inverse Voltage	175	V
$I_{F(AV)}$	Average Rectified Current	200	mA
I_{FM}	DC Forward Current	600	mA
I_{FRM}	Recurrent Peak Forward Current	700	mA
I_{FSM}	Non-repetitive Peak Forward Surge Current Pulse width = 1.0 second Pulse width = 1.0 microsecond	1.0 2.0	A A
T_{stg}	Storage Temperature Range	-55 to +150	°C
T_J	Operating Junction Temperature	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

TA = 25°C unless otherwise noted

Symbol	Parameter	Max	Units
		MMBD1401/1403/1404/1405*	
P_D	Total Device Dissipation Derate above 25°C	350 2.8	mW mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	357	°C/W

* Device mounted on glass epoxy PCB 1.6" X 0.06"; mounting pad for the collector lead min. 0.93 in2

High Voltage General Purpose Diode

(continued)

MMBD1401A / 1403A / 1404A / 1405A

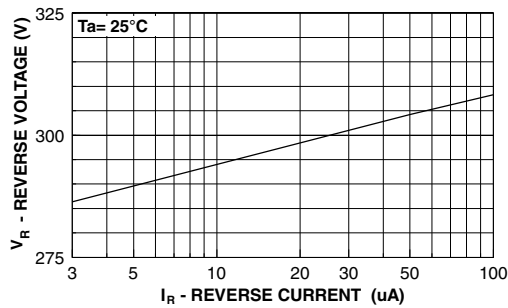
Electrical Characteristics

TA = 25°C unless otherwise noted

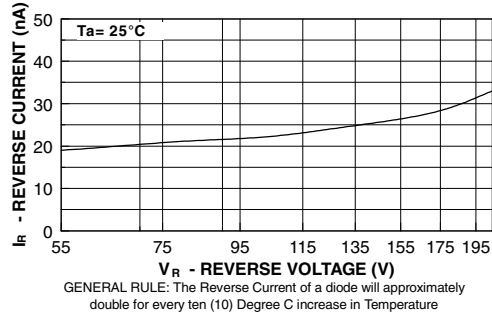
Symbol	Parameter	Test Conditions	Min	Max	Units
V_R	Breakdown Voltage	$I_R = 100 \mu A$	200		V
I_{RM}	Maximum Instantaneous Reverse Current	$V_R = 120 V$ $V_R = 175 V$		40 100	nA nA
V_{FM}	Maximum Instantaneous Forward Voltage	$I_F = 10 mA$ $I_F = 50 mA$ $I_F = 200 mA$ $I_F = 300 mA$	760	800 920 1.0 1.1	mV mV V V
C_O	Diode Capacitance	$V_R = 0, f = 1.0 MHz$		2.0	pF
t_{rr}	Reverse Recovery Time	$I_F = I_{R30 mA}$, $I_{RR} = 1.0 mA, R_L = 100 \Omega$		50	ns

Typical Characteristics

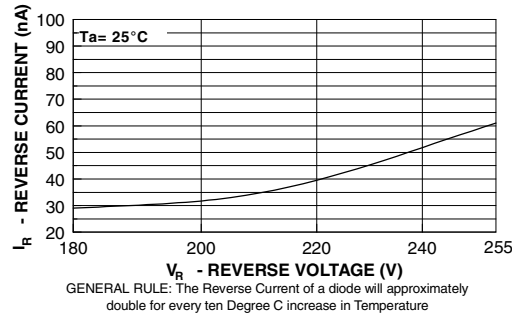
REVERSE VOLTAGE vs REVERSE CURRENT
BV - 1.0 to 100 uA



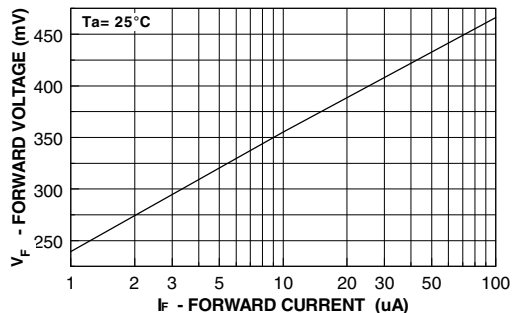
REVERSE CURRENT vs REVERSE VOLTAGE
IR - 55 to 205 V



REVERSE CURRENT vs REVERSE VOLTAGE
IR - 180 to 255 V



FORWARD VOLTAGE vs FORWARD CURRENT
VF - 1.0 to 100 uA



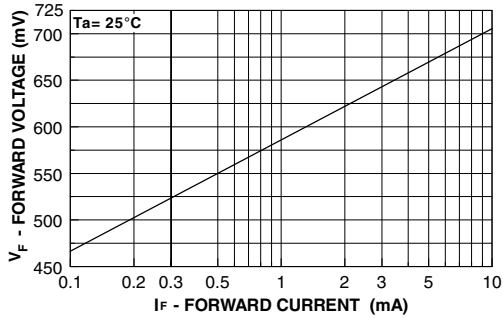
High Voltage General Purpose Diode

(continued)

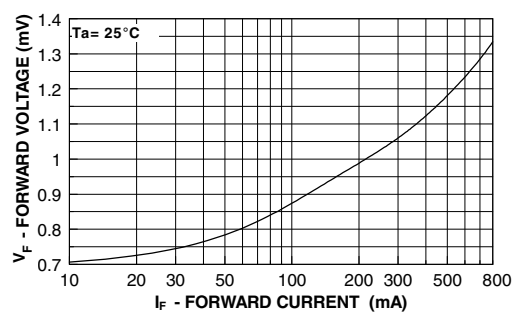
MMBD1401A / 1403A / 1404A / 1405A

Typical Characteristics (continued)

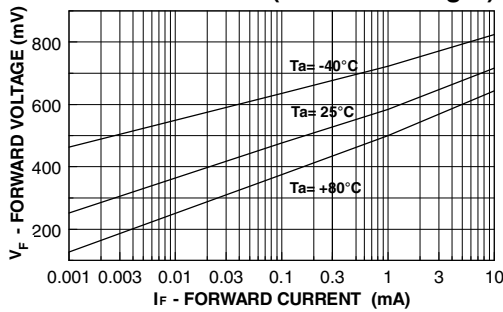
FORWARD VOLTAGE vs FORWARD CURRENT
VF - 0.1 to 10 mA



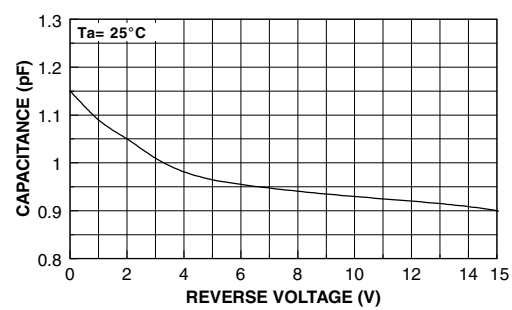
FORWARD VOLTAGE vs FORWARD CURRENT
VF - 10 to 800 mA



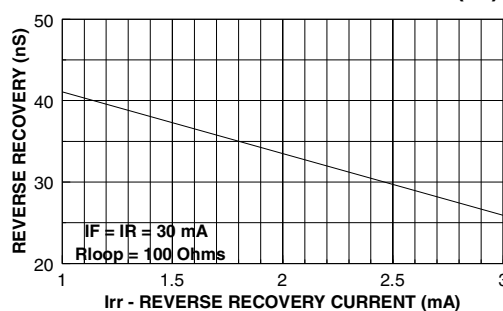
Forward Voltage vs Ambient Temperature
VF - 1.0 μ A - 10 mA (-40 to +80 Deg C)



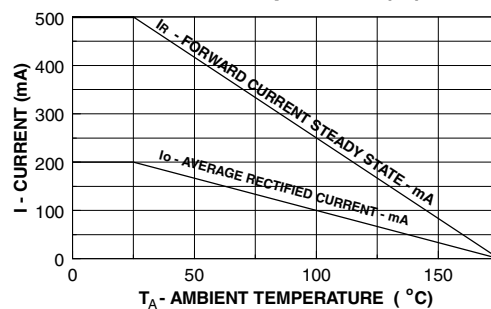
CAPACITANCE vs REVERSE VOLTAGE
VR - 0 to 15 V



REVERSE RECOVERY TIME vs REVERSE RECOVERY CURRENT (I_{rr})



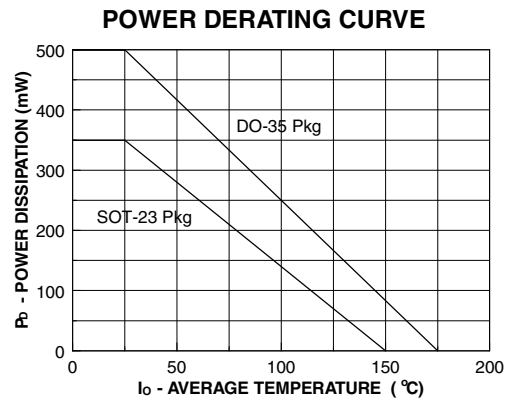
Average Rectified Current (I_o) & Forward Current (I_f) versus Ambient Temperature (T_A)



High Voltage General Purpose Diode

(continued)

Typical Characteristics (continued)

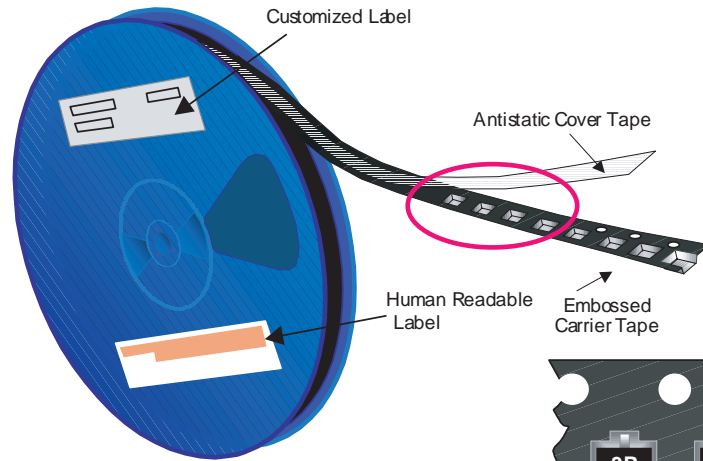


MMBD1401A / 1403A / 1404A / 1405A

SOT-23 Tape and Reel Data



SOT-23 Packaging Configuration: Figure 10



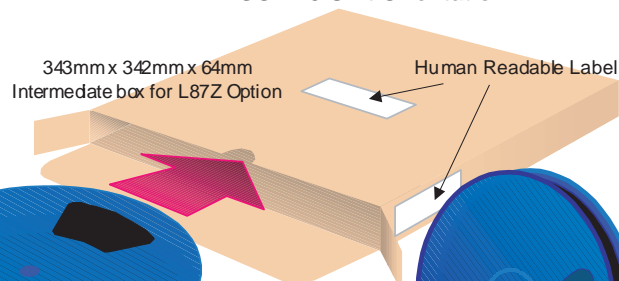
Packaging Description:

SOT-23 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 labeled and placed inside a standard intermediate made of recyclable corrugated brown paper with a Fairchild logo printing. One pizza box contains eight reels maximum. And these intermediate boxes are placed inside a labeled shipping box which comes in different sizes depending on the number of parts shipped.

SOT-23 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)	187x107x183	343x343x64
Max qty per Box	24,000	30,000
Weight per unit (gm)	0.0082	0.0082
Weight per Reel (kg)	0.1175	0.4006
Note/Comments		

SOT-23 Unit Orientation

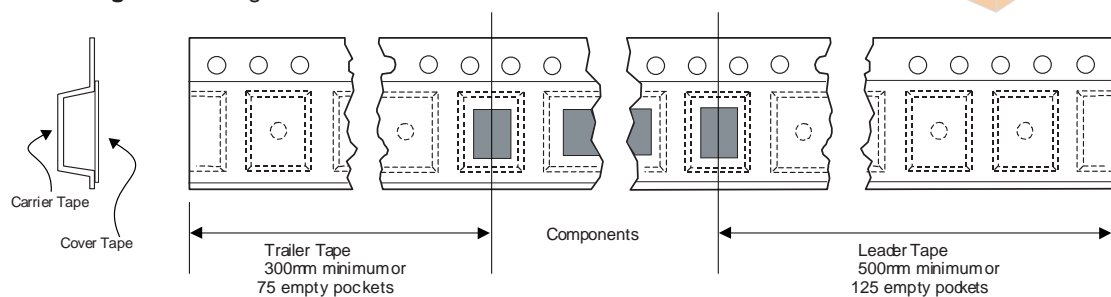


Human Readable Label sample



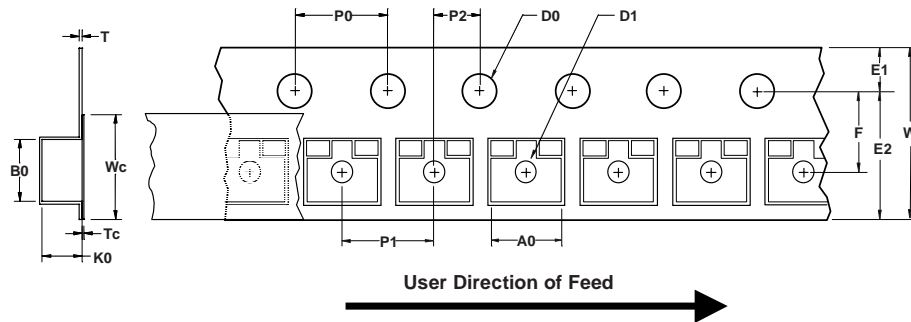
Human readable Label

SOT-23 Tape Leader and Trailer Configuration: Figure 20



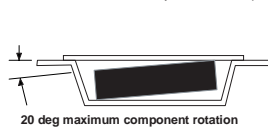
SOT-23 Tape and Reel Data, continued

SOT-23 Embossed Carrier Tape Configuration: Figure 3.0

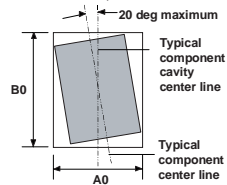


Dimensions are in millimeter														
Pkg type	A0	B0	W	D0	D1	E1	E2	F	P1	P0	K0	T	Wc	Tc
SOT-23 (8mm)	3.15 +/-0.10	2.77 +/-0.10	8.0 +/-0.3	1.55 +/-0.05	1.125 +/-0.125	1.75 +/-0.10	6.25 min	3.50 +/-0.05	4.0 +/-0.1	4.0 +/-0.1	1.30 +/-0.10	0.228 +/-0.013	5.2 +/-0.3	0.06 +/-0.02

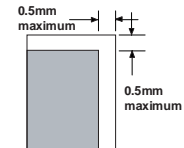
Notes: A0, B0, and K0 dimensions are determined with respect to the EIA/Jedec RS-481 rotational and lateral movement requirements (see sketches A, B, and C).



Sketch A (Side or Front Sectional View)
Component Rotation

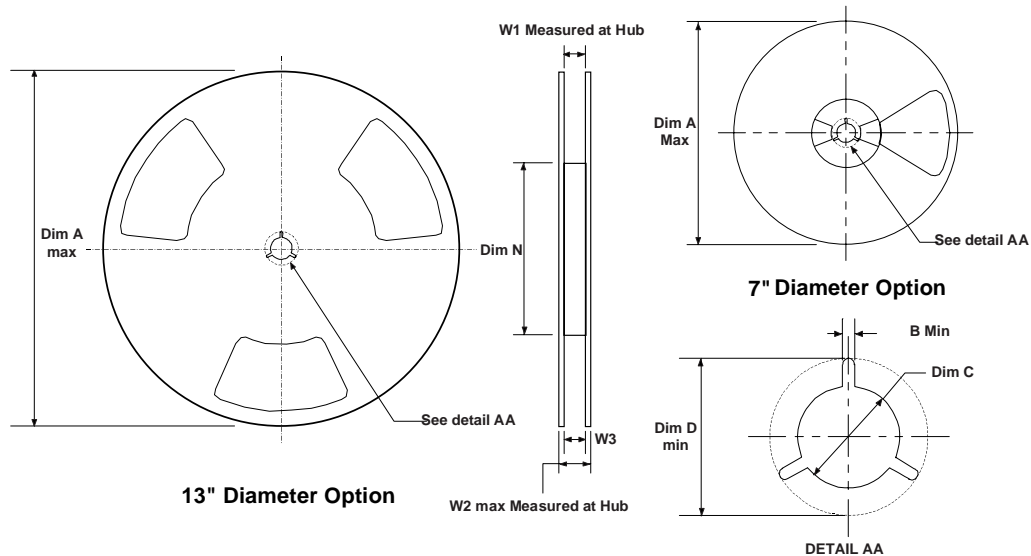


Sketch B (Top View)
Component Rotation



Sketch C (Top View)
Component lateral movement

SOT-23 Reel Configuration: Figure 4.0

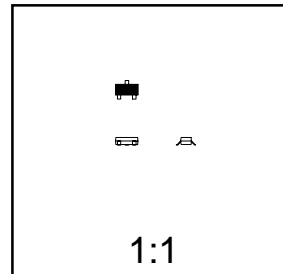
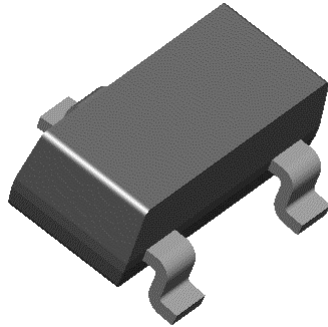


Dimensions are in inches and millimeters									
Tape Size	Reel Option	Dim A	Dim B	Dim C	Dim D	Dim N	Dim W1	Dim W2	Dim W3 (LSL-USL)
8mm	7" Dia	7.00 177.8	0.059 1.5	512 +0.020/-0.008 13 +0.5/-0.2	0.795 20.2	2.165 55	0.331 +0.059/-0.000 8.4 +1.5/0	0.567 14.4	0.311 - 0.429 7.9 - 10.9
8mm	13" Dia	13.00 330	0.059 1.5	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

SOT-23 Package Dimensions



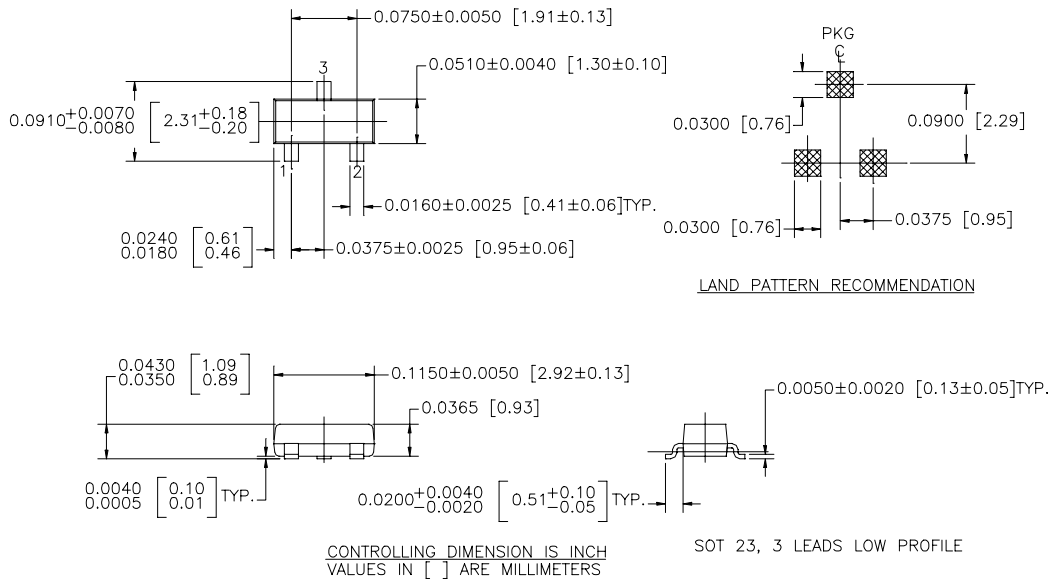
SOT-23 (FS PKG Code 49)



Scale 1:1 on letter size paper

Dimensions shown below are in:
inches [millimeters]

Part Weight per unit (gram): 0.0082



NOTE : UNLESS OTHERWISE SPECIFIED

1. STANDARD LEAD FINISH 150 MICROINCHES / 3.81 MICROMETERS
MINIMUM TIN / LEAD (SOLDER) ON ALLOY 42
2. REFERENCE JEDEC REGISTRATION TO-236, VARIATION AB, ISSUE G, DATED JUL 1993

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

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