SURFACE MOUNT FAST SWITCHING DIODE

Features

- Ultra-Small Surface Mount Package
- Fast Switching Speed
- For General Purpose Switching Applications
- Dual Isolated Device with Opposing Polarity
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen- and Antimony-Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

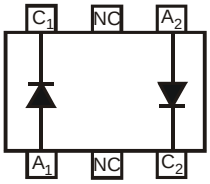
Mechanical Data

- Case: SOT-563
- Case Material: Molded Plastic; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Copper Lead-Frame; Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.003 grams (Approximate)

SOT-563

Top View

Bottom View



Top View
Internal Schematic

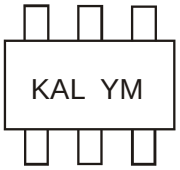
Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
MMBD4448V-7	Standard	SOT-563	3,000/Tape & Reel

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/..

Marking Information (Note 5)

SOT-563



KAL = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: H = 2020)
M = Month (ex: 9 = September)

Date Code Key

Year	2004	…..	2020	2021	2022	2023	2024	2025	2026
Code	R	…..	H	I	J	K	L	M	N

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Notes: 5. Package is non-polarized. Parts may be on reel in orientation illustrated, 180° rotated, or mixed.

Maximum Ratings (@ T_A = +25°C unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Non-Repetitive Peak Reverse Voltage		V_{RM}	100	V
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage		V_{RRM} V_{RWM} V_R	80	V
RMS Reverse Voltage		$V_{R(RMS)}$	57	V
Forward Continuous Current (Note 6)		I_{FM}	500	mA
Average Rectified Output Current (Note 6)		I_O	250	mA
Non-Repetitive Peak Forward Surge Current	@ t = 1.0μs @ t = 1.0s	I_{FSM}	4.0 1.0	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	150	mW
Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	833	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (@ T_A = +25°C unless otherwise specified.)

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	80	—	V	I_R = 2.5μA
Forward Voltage	V_F	0.62 — — —	0.72 0.855 1.0 1.25	V	I_F = 5.0mA I_F = 10mA I_F = 100mA I_F = 150mA
Leakage Current (Note 7)	I_R	—	100 50 30 25	nA μA μA nA	V_R = 70V V_R = 75V, T_J = +150°C V_R = 25V, T_J = +150°C V_R = 20V
Total Capacitance	C_T	—	3.5	pF	V_R = 6V, f = 1.0MHz
Reverse Recovery Time	t_{rr}	—	4.0	ns	I_F = I_R = 10mA, I_{rr} = 0.1 x I_R, R_L = 100Ω

Notes: 6. Device mounted on FR-4 PCB, 1-inch x 0.85 inch x 0.062 inch pad layout.
7. Short duration pulse test used to minimize self-heating effect.

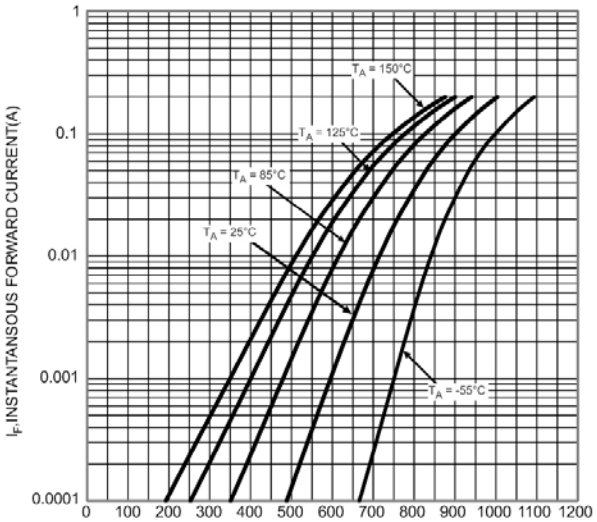


Fig.1 Typical Forward Characteristics

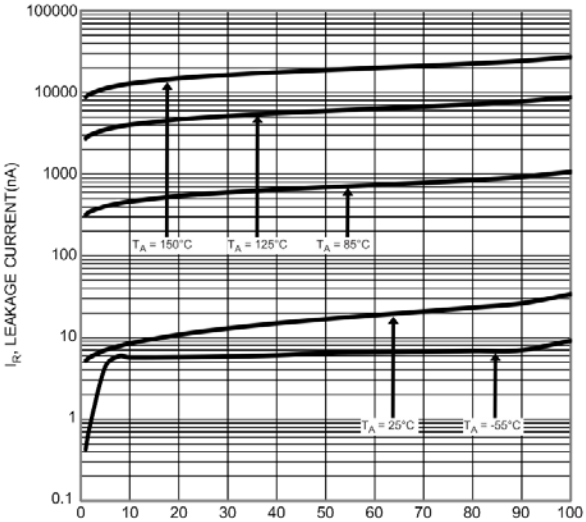


Fig.2 Typical Reverse Characteristics

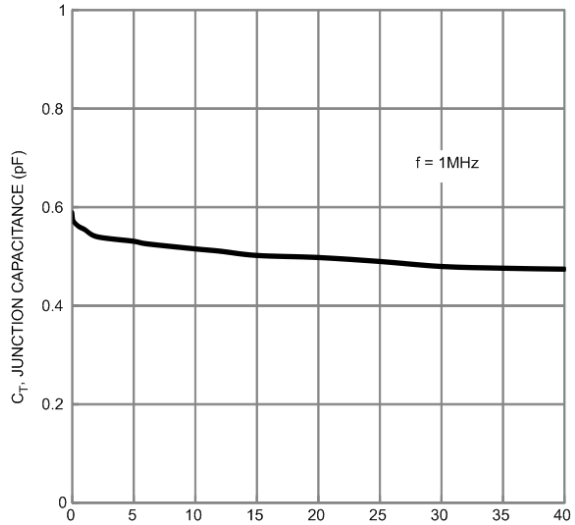


Fig.3 Typical Junction Capacitance

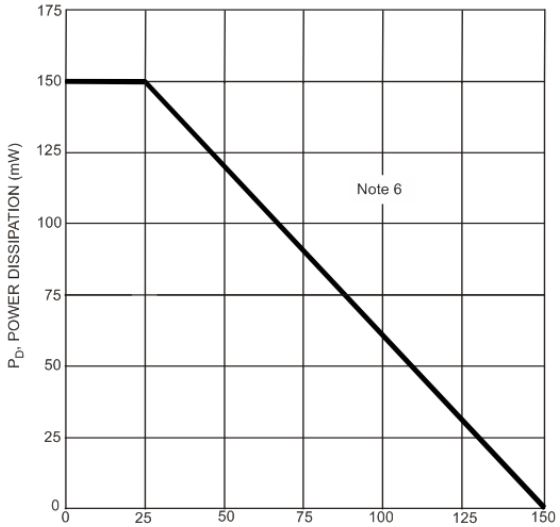
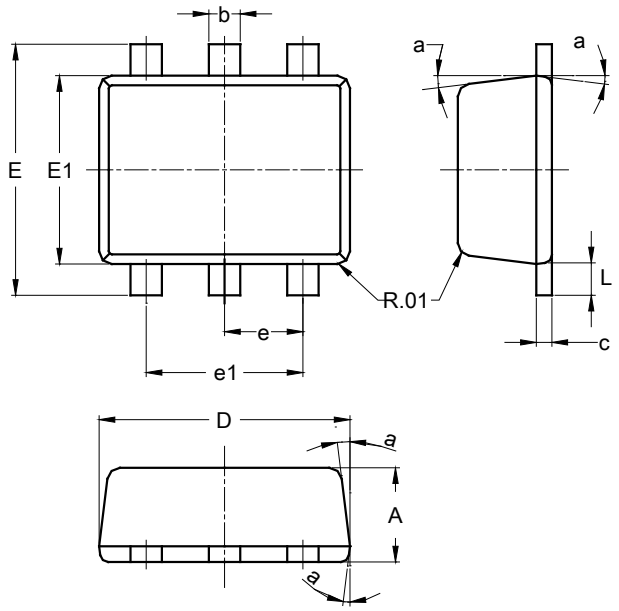


Fig.4 Power Derating Curve

Package Outline Dimensions

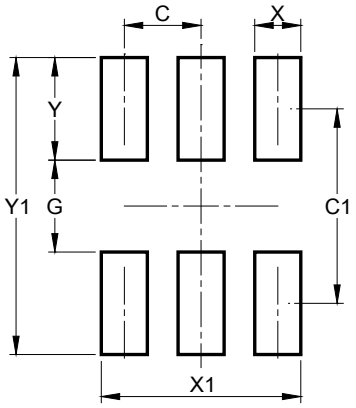
Please see http://www.diodes.com/package-outlines.html for the latest version.



SOT563			
Dim	**Min**	**Max**	**Typ**
A	0.55	0.60	0.60
b	0.15	0.30	0.20
c	0.10	0.18	0.11
D	1.50	1.70	1.60
E	1.55	1.70	1.60
E1	1.10	1.25	1.20
e	--	--	0.50
e1	0.90	1.10	1.00
L	0.10	0.30	0.20
a	8°	9°	7°
All Dimensions in mm			

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.



Dimensions	Value (in mm)
C	0.500
C1	1.270
G	0.600
X	0.300
X1	1.300
Y	0.670
Y1	1.940

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