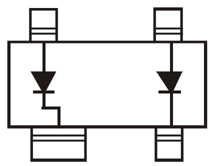
DUAL SURFACE MOUNT SWITCHING DIODE

Features

- Fast Switching Speed
- High Reverse Breakdown Voltage
- Two Electrically Isolated Elements in a Single Compact Package
- Low Leakage Current
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

Mechanical Data

- Case: SOT143
- Case Material: Molded Plastic, "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead-Free Plating). Solderable per MIL-STD-202, Method 208 e3
- Polarity: See Diagram Below
- Weight: 0.008 grams (Approximate)



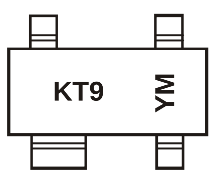
Device Schematic

Ordering Information (Notes 4 & 5)

Part Number	Compliance	Case	Packaging
BAW101Q-7	Automotive	SOT143	3,000/Tape & Reel

Notes: 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See http://www.diodes.com/quality/lead_free.html 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to http://www.diodes.com/product_compliance_definitions.html.
5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



KT9 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: D = 2016)
M = Month (ex: 9 = September)

Date Code Key

Year	2016	2017	2018	2019	2020	2021	2022
Code	D	E	F	G	H	I	J

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

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

Characteristic		Symbol	Value	Unit
Repetitive Peak Reverse Voltage	Single Diode	V_{RRM}	300	V
	Series Connection		600	
Working Peak Reverse Voltage DC Blocking Voltage	Single Diode	V_{RWM} V_R	300	V
	Series Connection		600	
RMS Reverse Voltage		$V_{R(RMS)}$	212	V
Forward Current (Note 6)	Single Diode Loaded	I_F	250	mA
	Double Diodes Loaded		140	
Non-Repetitive Peak Forward Surge Current Square Wave @ t = 1.0µs		I_{FSM}	4.5	A
Repetitive Peak Forward Current (Note 6)		I_{FRM}	625	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	400	mW
Thermal Resistance Junction to Ambient Air (Note 6)	$R_{\theta JA}$	312	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

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

Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	$V_{(BR)R}$	300	—	V	I_R = 100µA
Forward Voltage	V_F	—	1.1	V	I_F = 100mA
Reverse Current (Note 7)	I_R	— —	150 75	nA µA	V_R = 250V V_R = 250V, T_J = +150°C
Total Capacitance	C_T	—	2.0	pF	V_R = 0, f = 1.0MHz
Reverse Recovery Time	t_{RR}	—	50	ns	$I_F = I_R$ = 30mA, $I_{RR} = 0.1 \times I_R$, R_L = 100Ω

Notes: 6. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html.
7. Short duration pulse test used to minimize self-heating effect.

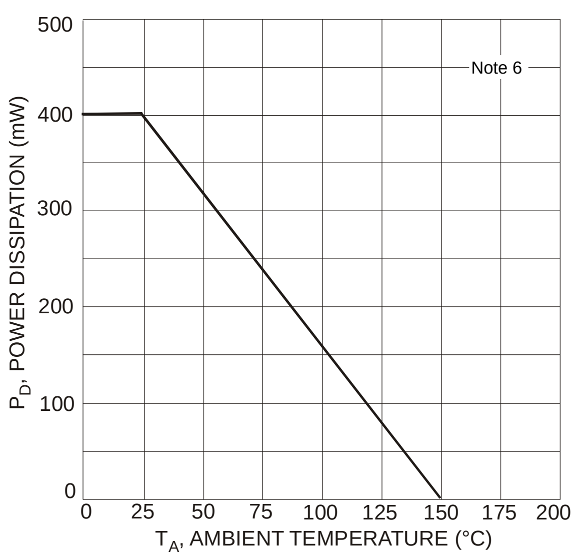


Fig. 1 Power Derating Curve, Total Package

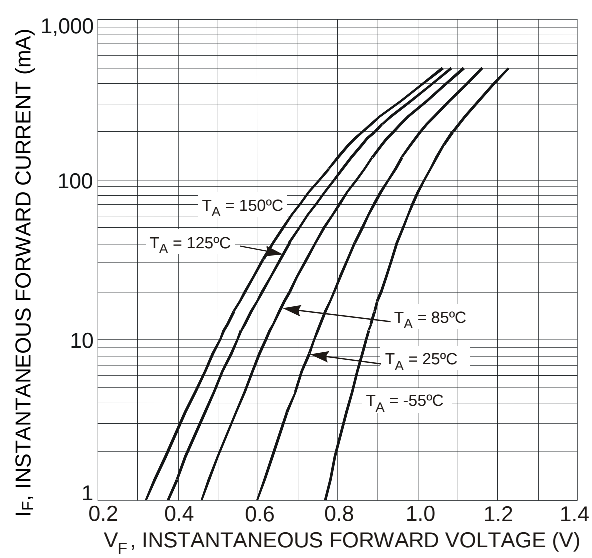


Fig. 2 Typical Forward Characteristics, Per Element

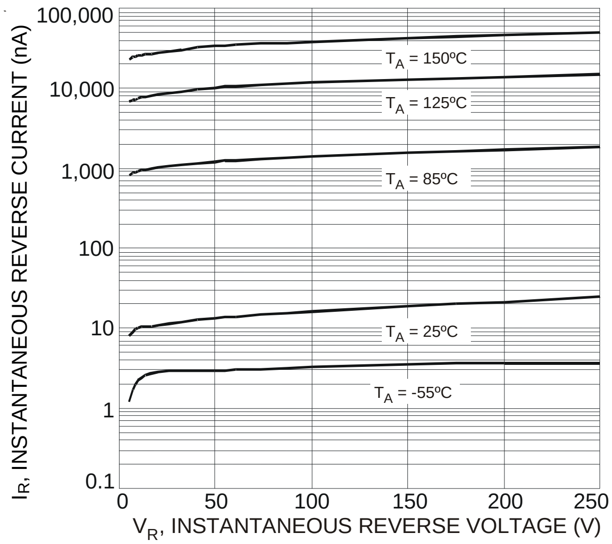


Fig. 3 Typical Reverse Characteristics, Per Element

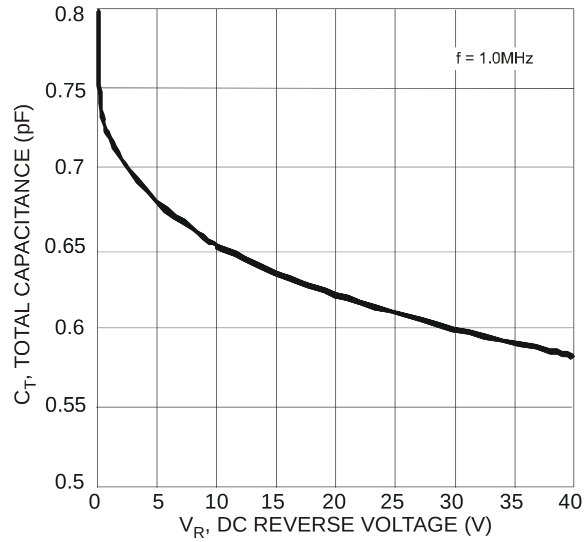
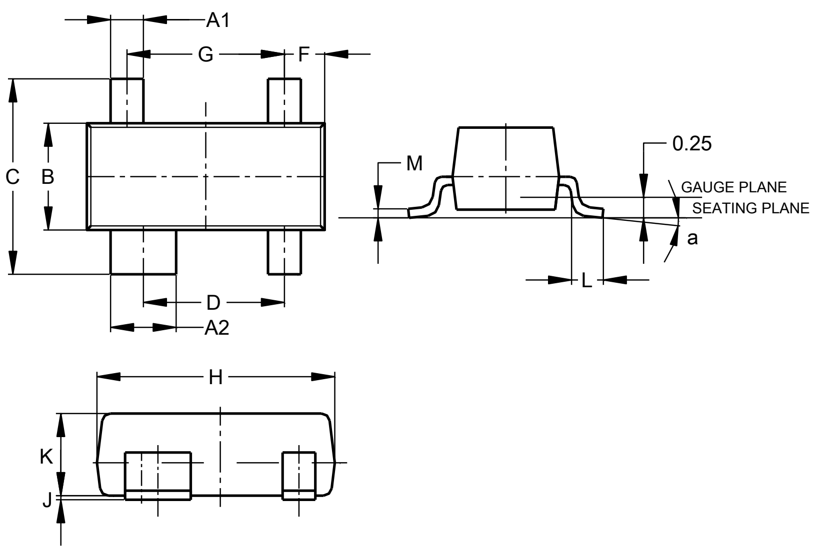


Fig. 4 Typical Total Capacitance vs. Reverse Voltage, Per Element

Package Outline Dimensions

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

SOT143

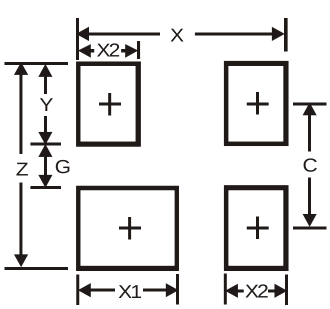


SOT143			
Dim	**Min**	**Max**	**Typ**
A1	0.37	0.51	0.400
A2	0.77	0.93	0.800
B	1.20	1.40	1.30
C	2.28	2.48	2.38
D	1.58	1.83	1.72
F	0.45	0.60	0.49
G	1.78	2.03	1.92
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.89	1.00	–
L	0.46	0.60	0.50
M	0.085	0.18	0.11
a	0°	8°	–
All Dimensions in mm			

Suggested Pad Layout

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

SOT143



Dimensions	Value (in mm)
Z	2.70
G	1.30
X	2.50
X1	1.00
X2	0.60
Y	0.70
C	2.00

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