DUAL SURFACE MOUNT FAST SWITCHING DIODE

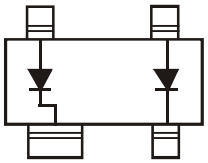
Features

- Fast Switching Speed
- For General Purpose Switching Applications
- Two Electrically Isolated Elements in a Single Compact Package
- **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: Finish – Matte Tin Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Polarity: See Diagram Below
- Weight: 0.009 grams (Approximate)

SOT143



Device Schematic

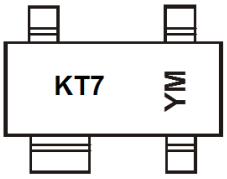
Ordering Information (Note 5)

Part Number	Qualification	Case	Packaging
BAS28Q-13	Automotive	SOT-143	10,000/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 https://www.diodes.com/quality/.
5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information

SOT143



KT7 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: E = 2017)
M = Month (ex: 9 = September)

Date Code Key

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Code	E	F	G	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

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

Characteristic		Symbol	Value	Unit
Repetitive Peak Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage		V_{RRM} V_{RWM} V_R	85	V
RMS Reverse Voltage		$V_{R(RMS)}$	60	V
Forward Current (Note 6)		I_F	215	mA
Non-Repetitive Peak Forward Surge Current	@ t = 1.0μs @ t = 1.0ms @ t = 1s	I_{FSM}	4.0 1.0 0.5	A
Repetitive Peak Forward Current		I_{FRM}	500	mA

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	250	mW
Thermal Resistance Junction to Ambient Air (Note 6)	$R_{\theta JA}$	500	°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)	$V_{(BR)R}$	85	—	V	I_R = 100μA
Forward Voltage	V_F	—	0.715 0.855 1.0 1.25	V	I_F = 1.0mA I_F = 10mA I_F = 50mA I_F = 150mA
Reverse Current (Note 7)	I_R	— — —	1.0 50 30 30	μA μA μA nA	V_R = 75V V_R = 75V, T_J = +150°C V_R = 25V, T_J = +150°C V_R = 25V
Total Capacitance	C_T	—	1.5	pF	V_R = 0, f = 1.0MHz
Reverse Recovery Time	t_{RR}	—	4	ns	I_F = I_R = 10mA, I_{RR} = 0.1 x I_R, R_L = 100Ω

Notes: 6. Part is mounted on a FR-4 substrate PC board, with 1" x 1" 2oz copper pad.
7. Short duration pulse test used to minimize self-heating effect.

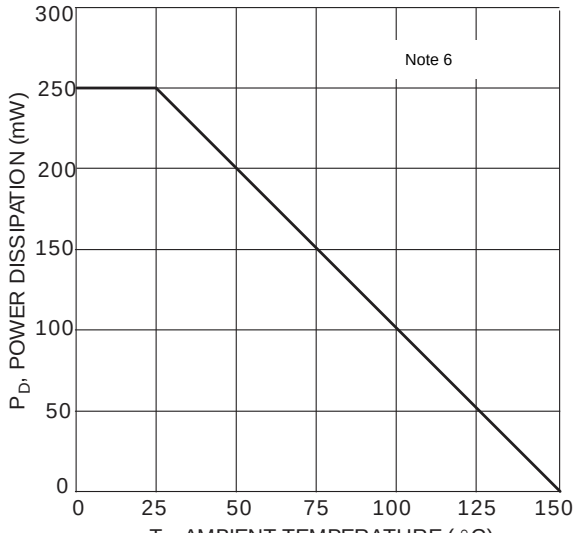


Figure 1 Power Derating Curve, Total Package

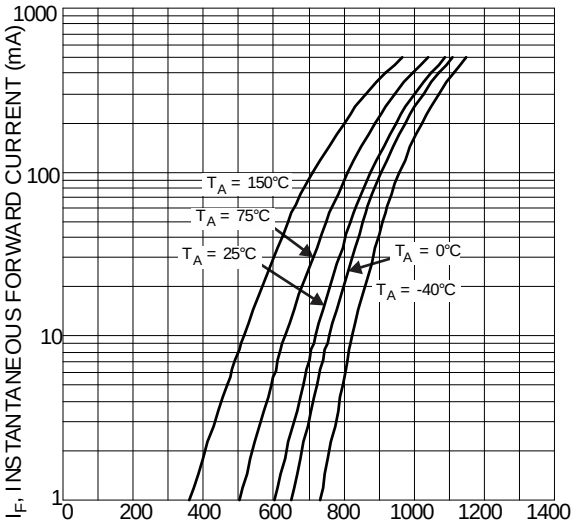


Figure 2 Typical Forward Characteristics, Per Element

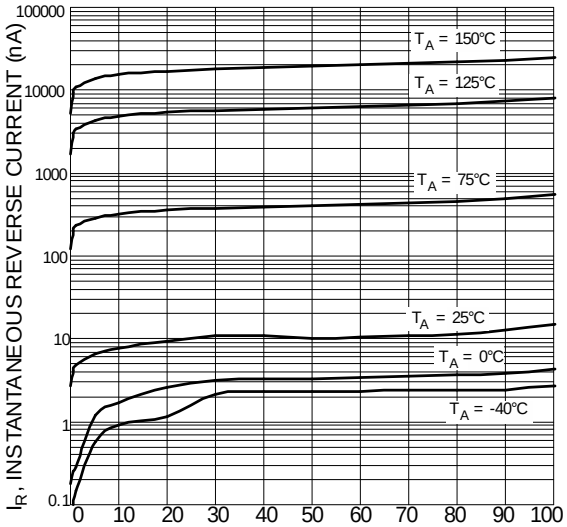


Figure 3 Typical Reverse Characteristics, Per Element

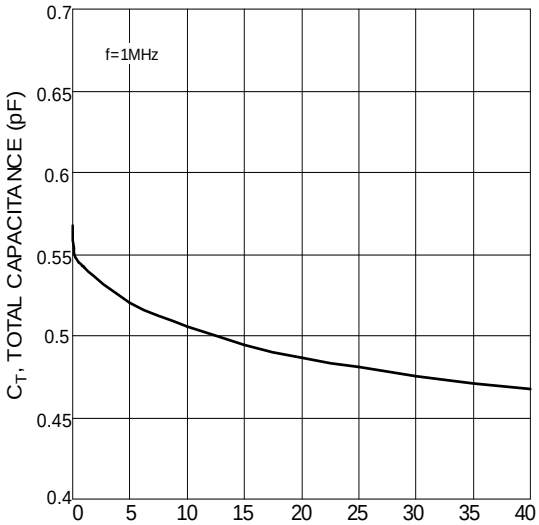
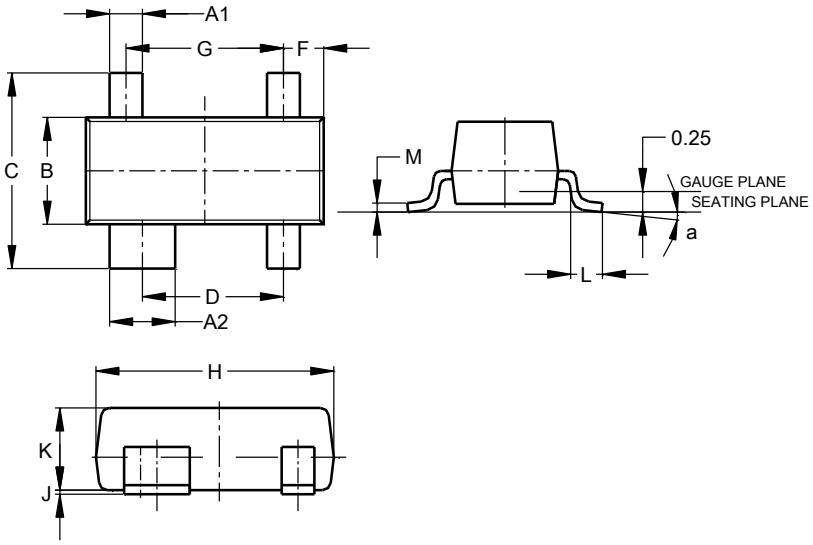


Figure 4 Total Capacitance vs. Reverse Voltage, Per Element

Package Outline Dimensions

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

SOT143

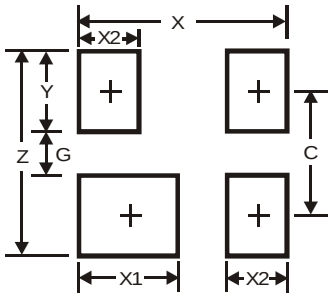


SOT143			
Dim	**Min**	**Max**	**Typ**
A1	0.37	0.51	0.400
A2	0.77	0.93	0.800
B	1.20	1.40	1.30
C	2.28	2.48	2.38
D	1.58	1.83	1.72
F	0.45	0.60	0.49
G	1.78	2.03	1.92
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.89	1.00	–
L	0.46	0.60	0.50
M	0.085	0.18	0.11
a	0°	8°	–
All Dimensions in mm			

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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