

#### **DUAL SURFACE MOUNT SWITCHING DIODE**

#### **Features**

- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automated Insertion
- For General Purpose Switching Applications
- Two Diode Elements Connected in a Common Anode
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen- and Antimony-Free. "Green" Device (Note 3)
- The BAW56Q is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.

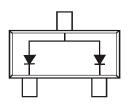
https://www.diodes.com/quality/product-definitions/

#### **Mechanical Data**

- Case: SOT23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Lead-Frame (Lead-Free Plating). Solderable per MIL-STD-202, Method 208 @3
- Polarity: See Diagram
- Weight: 0.008 grams (Approximate)







Top View Internal Schematic

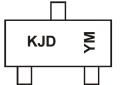
#### Ordering Information (Note 4)

Part Number	Compliance	Case	Packaging
BAW56-7-F	Standard	SOT23	3,000/Tape & Reel
BAW56-13-F	Standard	SOT23	10,000/Tape & Reel
BAW56Q-7-F	Automotive	SOT23	3,000/Tape & Reel
BAW56Q-13-F	Automotive	SOT23	10,000/Tape & Reel

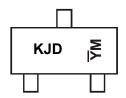
Notes:

- 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
- 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**



SAT (Shanghai Assembly / Test Site) KJD = Product Type Marking Code YM = Date Code Marking Y = Year (ex: H = 2020)M = Month (ex: 9 = September)



CAT (Chengdu Assembly / Test Site) KJD = Product Type Marking Code YM = Date Code Marking for Chengdu  $\overline{Y}$  = Year (ex: H = 2020) M = Month (ex: 9 = September)

December 2020

Date Code Key

Year	2002		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Code	0		Н	- 1	J	K	L	М	N	0	Р	R
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec



### Maximum Ratings (@ T<sub>A</sub> = +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 <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	75	٧
RMS Reverse Voltage		V <sub>R(RMS)</sub>	53	V
Forward Continuous Current (Note 5)		I <sub>FM</sub>	300	mA
	t = 1.0µs t = 1.0s	I <sub>FSM</sub>	2.0 1.0	А

## **Thermal Characteristics**

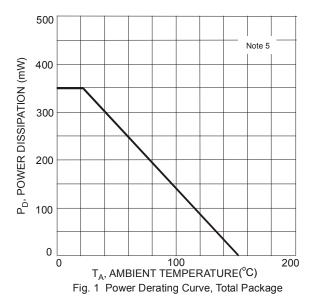
Characteristic	Symbol	Value	Unit
Typical Power Dissipation (Note 5)	$P_{D}$	350	mW
Typical Thermal Resistance Junction to Ambient Air (Note 5)	$R_{ heta JA}$	357	°C/W
Operating and Storage Temperature Range	$T_J,T_STG$	-55 to +150	°C

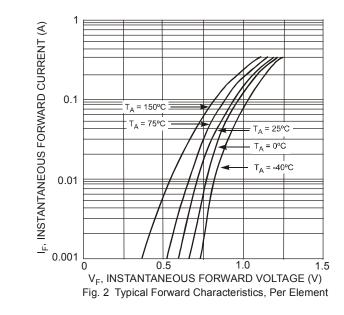
### Electrical Characteristics (@ T<sub>A</sub> = +25°C, unless otherwise specified.)

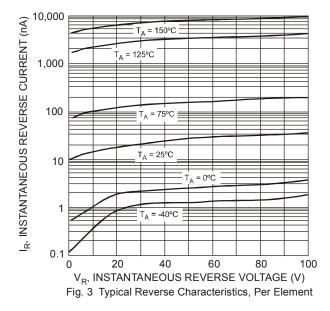
Characteristic	Symbol	Min	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	75	_	V	I <sub>R</sub> = 2.5μA
Forward Voltage	V <sub>F</sub>	_	0.715 0.855 1.0 1.25	V	I <sub>F</sub> = 1.0mA I <sub>F</sub> = 10mA I <sub>F</sub> = 50mA I <sub>F</sub> = 150mA
Reverse Current (Note 6)	I <sub>R</sub>	_	2.5 50 30 25	μΑ μΑ μΑ nA	V <sub>R</sub> = 75V V <sub>R</sub> = 75V, T <sub>J</sub> = +150°C V <sub>R</sub> = 25V, T <sub>J</sub> = +150°C V <sub>R</sub> = 20V
Total Capacitance	C <sub>T</sub>	_	2.0	pF	V <sub>R</sub> = 0, f = 1.0MHz
Reverse Recovery Time	t <sub>RR</sub>	_	4.0	ns	$I_F = I_R = 10 \text{mA},$ $I_{RR} = 0.1 \times I_R, R_L = 100 \Omega$

5. Part mounted on FR-4 substrate PC board with 1inch squared, 2oz copper pad layout.6. Short duration pulse test used to minimize self-heating effect.









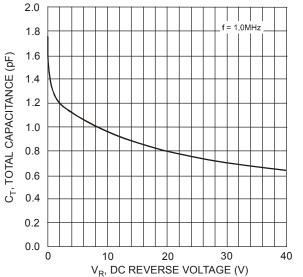


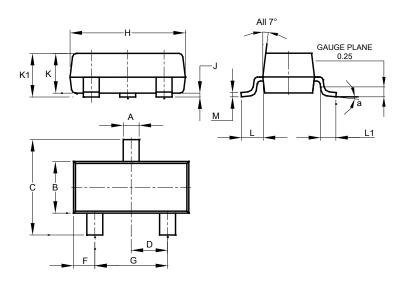
Fig. 4 Total Capacitance vs. Reverse Voltage, Per Element



### **Package Outline Dimensions**

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

#### SOT23

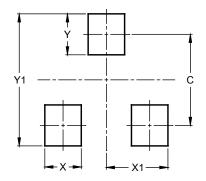


SOT23						
Dim	Min	Max	Тур			
Α	0.37	0.51	0.40			
В	1.20	1.40	1.30			
С	2.30	2.50	2.40			
D	0.89	1.03	0.915			
F	0.45	0.60	0.535			
G	1.78	2.05	1.83			
Н	2.80	3.00	2.90			
J	0.013	0.10	0.05			
K	0.890	1.00	0.975			
K1	0.903	1.10	1.025			
L	0.45	0.61	0.55			
L1	0.25	0.55	0.40			
M	0.085	0.150	0.110			
а	0°	8°				
All Dimensions in mm						

# Suggested Pad Layout

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

#### SOT23



Dimensions	Value (in mm)
С	2.0
Х	0.8
X1	1.35
Y	0.9
Y1	2.9



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