

Dual Switching Diode Common Anode

BAW56L, SBAW56L

Features

- S Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS (EACH DIODE)

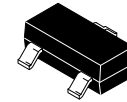
Rating	Symbol	Value	Unit
Reverse Voltage	V_R	70	V
Forward Current	I_F	200	mA
Forward Surge Current (60 Hz @ 1 cycle)	I_{FSM}	2.0	A
Non-Repetitive Peak Forward Current $t = 1 \mu s$ (Note 3)	I_{FSM}	4.0	A
Repetitive Peak Forward Current Pulse Wave = 1 sec, Duty Cycle = 66%	I_{FRM}	500	mA
ESD Rating: Human Body Model Machine Model Charged Device Model	ESD	Class 3A Class M4 Class C3	

THERMAL CHARACTERISTICS

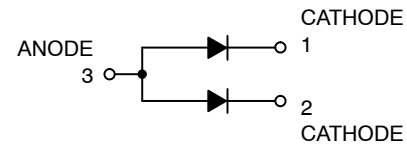
Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (Note 1) $T_A = 25^\circ C$ Derate above $25^\circ C$	P_D	225	mW
		1.8	mW/ $^\circ C$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	556	$^\circ C/W$
Total Device Dissipation Alumina Substrate, (Note 2) $T_A = 25^\circ C$ Derate above $25^\circ C$	P_D	300	mW
		2.4	mW/ $^\circ C$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	417	$^\circ C/W$
Junction and Storage Temperature	T_J, T_{stg}	-55 to +150	$^\circ C$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

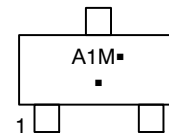
1. FR-5 = $1.0 \times 0.75 \times 0.062$ in.
2. Alumina = $0.4 \times 0.3 \times 0.024$ in. 99.5% alumina.
3. Square Wave; $T_J = 25^\circ C$.



SOT-23 (TO-236)
CASE 318
STYLE 12



MARKING DIAGRAM



A1 = Device Code
M = Date Code*
▪ = Pb-Free Package

(Note: Microdot may be in either location)

*Date Code orientation and/or overbar may vary depending upon manufacturing location.

ORDERING INFORMATION

Device	Package	Shipping†
BAW56LT1G	SOT-23 (Pb-Free)	3,000 / Tape & Reel
SBAW56LT1G	SOT-23 (Pb-Free)	3,000 / Tape & Reel
BAW56LT3G	SOT-23 (Pb-Free)	10,000 / Tape & Reel
SBAW56LT3G	SOT-23 (Pb-Free)	10,000 / Tape & Reel

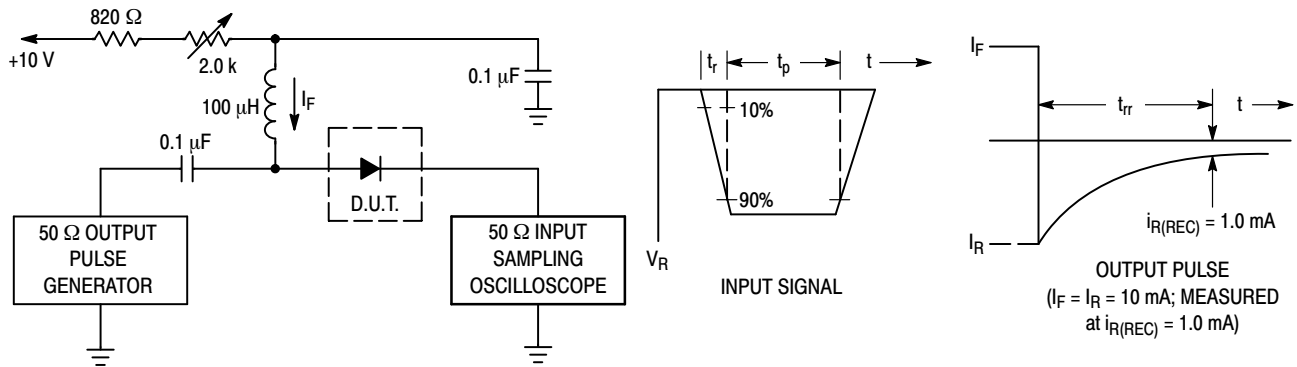
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

BAW56L, SBAW56L

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted) (Each Diode)

Characteristic	Symbol	Min	Max	Unit
Reverse Breakdown Voltage ($I_{(BR)} = 100 \mu\text{A}$)	$V_{(BR)}$	70	–	V
Reverse Voltage Leakage Current ($V_R = 25 \text{ V}$, $T_J = 150^\circ\text{C}$) ($V_R = 70 \text{ V}$) ($V_R = 70 \text{ V}$, $T_J = 150^\circ\text{C}$)	I_R	– – –	30 2.5 50	μA
Diode Capacitance ($V_R = 0 \text{ V}$, $f = 1.0 \text{ MHz}$)	C_D	–	2.0	pF
Forward Voltage ($I_F = 1.0 \text{ mA}$) ($I_F = 10 \text{ mA}$) ($I_F = 50 \text{ mA}$) ($I_F = 150 \text{ mA}$)	V_F	– – – –	715 855 1000 1250	mV
Reverse Recovery Time ($I_F = I_R = 10 \text{ mA}$, $I_{R(REC)} = 1.0 \text{ mA}$) (Figure 1) $R_L = 100 \Omega$	t_{rr}	–	6.0	ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.



- Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current (I_F) of 10 mA.
2. Input pulse is adjusted so $I_{R(\text{peak})}$ is equal to 10 mA.
3. $t_p \gg t_{rr}$

Figure 1. Recovery Time Equivalent Test Circuit

BAW56L, SBAW56L

Curves Applicable to Each Cathode

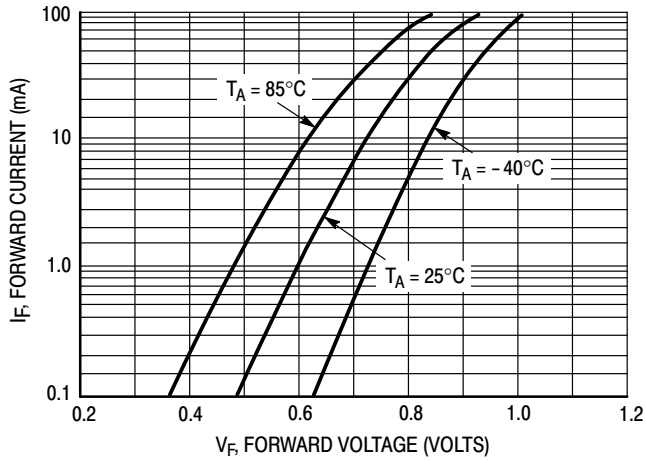


Figure 2. Forward Voltage

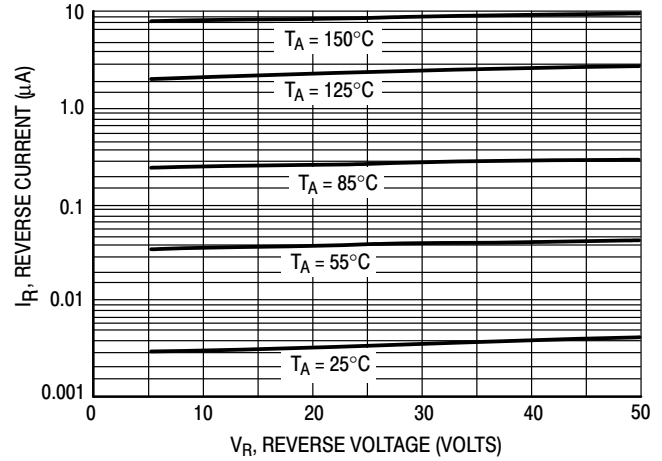


Figure 3. Leakage Current

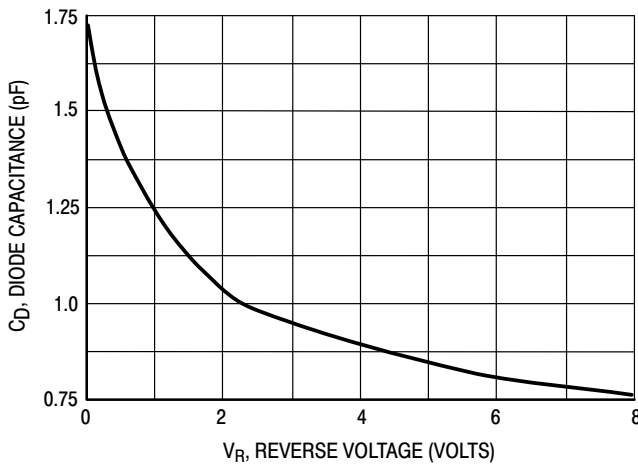


Figure 4. Capacitance

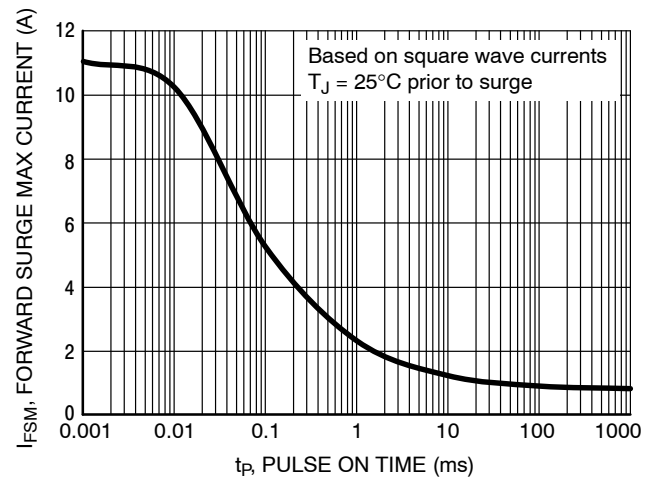


Figure 5. Forward Surge Current



SCALE 4:1

SOT-23 (TO-236) 2.90x1.30x1.00 1.90P
CASE 318
ISSUE AU

DATE 14 AUG 2024



MILLIMETERS			
DIM	MIN	NOM	MAX
A	0.89	1.00	1.11
A1	0.01	0.06	0.10
b	0.37	0.44	0.50
c	0.08	0.14	0.20
D	2.80	2.90	3.04
E	1.20	1.30	1.40
e	1.78	1.90	2.04
L	0.30	0.43	0.55
L1	0.35	0.54	0.69
HE	2.10	2.40	2.64
T	0°	---	10°

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSIONS: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

GENERIC
MARKING DIAGRAM*



XXX = Specific Device Code
M = Date Code
▪ = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present. Some products may not follow the Generic Marking.



RECOMMENDED
MOUNTING FOOTPRINT

* For additional information on our Pb-Free strategy and soldering details, please download the onsemi Soldering and Mounting Techniques Reference Manual, SOLDERM/D.

STYLES ON PAGE 2

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STYLE 1 THRU 5: CANCELLED	STYLE 6: PIN 1. BASE 2. EMITTER 3. COLLECTOR	STYLE 7: PIN 1. EMITTER 2. BASE 3. COLLECTOR	STYLE 8: PIN 1. ANODE 2. NO CONNECTION 3. CATHODE		
STYLE 9: PIN 1. ANODE 2. ANODE 3. CATHODE	STYLE 10: PIN 1. DRAIN 2. SOURCE 3. GATE	STYLE 11: PIN 1. ANODE 2. CATHODE 3. CATHODE-ANODE	STYLE 12: PIN 1. CATHODE 2. CATHODE 3. ANODE	STYLE 13: PIN 1. SOURCE 2. DRAIN 3. GATE	STYLE 14: PIN 1. CATHODE 2. GATE 3. ANODE
STYLE 15: PIN 1. GATE 2. CATHODE 3. ANODE	STYLE 16: PIN 1. ANODE 2. CATHODE 3. CATHODE	STYLE 17: PIN 1. NO CONNECTION 2. ANODE 3. CATHODE	STYLE 18: PIN 1. NO CONNECTION 2. CATHODE 3. ANODE	STYLE 19: PIN 1. CATHODE 2. ANODE 3. CATHODE-ANODE	STYLE 20: PIN 1. CATHODE 2. ANODE 3. GATE
STYLE 21: PIN 1. GATE 2. SOURCE 3. DRAIN	STYLE 22: PIN 1. RETURN 2. OUTPUT 3. INPUT	STYLE 23: PIN 1. ANODE 2. ANODE 3. CATHODE	STYLE 24: PIN 1. GATE 2. DRAIN 3. SOURCE	STYLE 25: PIN 1. ANODE 2. CATHODE 3. GATE	STYLE 26: PIN 1. CATHODE 2. ANODE 3. NO CONNECTION
STYLE 27: PIN 1. CATHODE 2. CATHODE 3. CATHODE	STYLE 28: PIN 1. ANODE 2. ANODE 3. ANODE				

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