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Switching Diode, Dual, High Voltage, Common Cathode

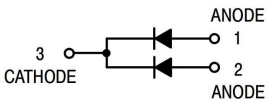
BAV23CLT1G

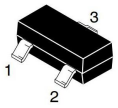
Features

- Moisture Sensitivity Level: 1
- ESD Rating – Human Body Model: Class 2
  – Machine Model: Class C
- Fast Switching Speed
- Switching Application
- These Devices are Pb–Free, Halogen Free/BFR Free and are RoHS Compliant

Typical Applications

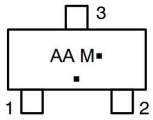
- LCD TV
- Power Supply
- Industrial





SOT–23

MARKING DIAGRAM



AA = Specific Device Code
M = Date Code
▪ = Pb–Free Package
(Note: Microdot may be in either location)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Continuous Reverse Voltage	V_R	250	V
Repetitive Peak Reverse Voltage	V_{RRM}	250	V
Peak Forward Current	I_F	400	mA
Non–Repetitive Peak Forward Surge Current @ t = 1.0 μs @ t = 100 μs @ t = 10 ms	I_{FSM}	9.0 3.0 1.7	A
Peak Forward Surge Current	$I_{FM(surge)}$	625	mAdc
Non–Repetitive Peak Per Human Body Model Per Machine Model	 HBM MM	 4.0 400	 kV V

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THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
SINGLE HEATED			
Total Device Dissipation (Note 1) T_A = 25°C Derate above 25°C	P_D	265 2.1	mW mW/°C
Thermal Resistance, Junction–to–Ambient (Note 1)	$R_{\theta JA}$	472	°C/W
Thermal Reference, Junction–to–Anode Lead (Note 1)	$R_{\psi JL}$	263	°C/W
Thermal Reference, Junction–to–Case (Note 1)	$R_{\psi JC}$	289	°C/W
Total Device Dissipation (Note 2) T_A = 25°C Derate above 25°C	P_D	345 2.7	mW mW/°C
Thermal Resistance, Junction–to–Ambient (Note 2)	$R_{\theta JA}$	362	°C/W
Thermal Reference, Junction–to–Anode Lead (Note 2)	$R_{\psi JL}$	251	°C/W
Thermal Reference, Junction–to–Case (Note 2)	$R_{\psi JC}$	250	°C/W
DUAL HEATED (Note 3)			
Total Device Dissipation (Note 1) T_A = 25°C Derate above 25°C	P_D	390 3.1	mW mW/°C
Thermal Resistance, Junction–to–Ambient (Note 1)	$R_{\theta JA}$	321	°C/W
Thermal Reference, Junction–to–Anode Lead (Note 1)	$R_{\psi JL}$	159	°C/W
Thermal Reference, Junction–to–Case (Note 1)	$R_{\psi JC}$	138	°C/W
Total Device Dissipation (Note 2) T_A = 25°C Derate above 25°C	P_D	540 4.3	mW mW/°C
Thermal Resistance, Junction–to–Ambient (Note 2)	$R_{\theta JA}$	231	°C/W
Thermal Reference, Junction–to–Anode Lead (Note 2)	$R_{\psi JL}$	148	°C/W
Thermal Reference, Junction–to–Case (Note 2)	$R_{\psi JC}$	119	°C/W
Junction and Storage Temperature Range	T_J, T_{stg}	–55 to +150	°C

1. FR-4 @ 100 mm^2, 1 oz. copper traces, still air.
2. FR-4 @ 500 mm^2, 2 oz. copper traces, still air.
3. Dual heated values assume total power is sum of two equally powered channels

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Reverse Voltage Leakage Current (V_R = 200 Vdc) (V_R = 200 Vdc, T_J = 150°C)	I_R	 – –	 0.1 100	μAdc
Reverse Breakdown Voltage (I_{BR} = 100 μAdc)	$V_{(BR)}$	250	–	Vdc
Forward Voltage (I_F = 100 mAdc) (I_F = 200 mAdc)	V_F	 – –	 1000 1250	mV
Diode Capacitance (V_R = 0, f = 1.0 MHz)	C_T	–	5.0	pF
Reverse Recovery Time (I_F = I_R = 30 mAdc, R_L = 100 Ω)	t_{rr}	–	150	ns

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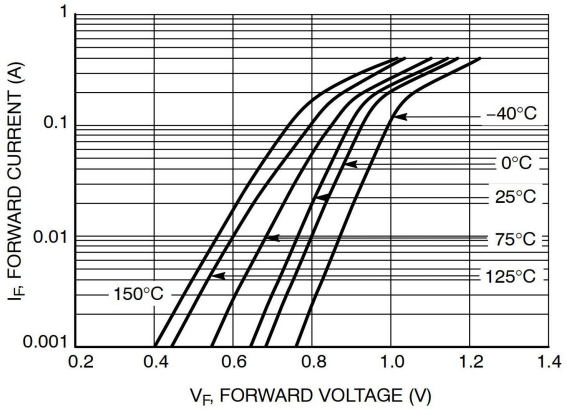


Figure 1. Forward Voltage

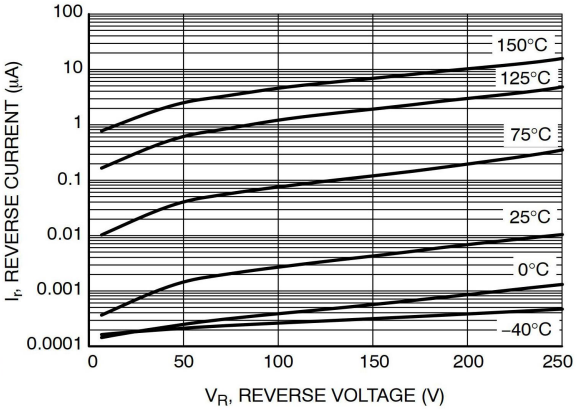


Figure 2. Reverse Current

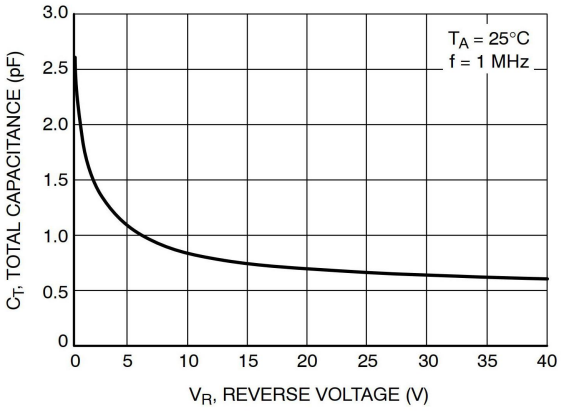
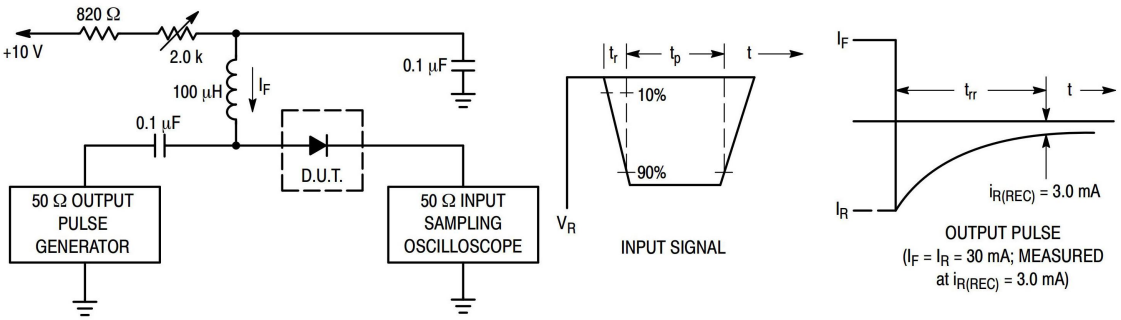


Figure 3. Total Capacitance



Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current (I_F) of 30 mA.
2. Input pulse is adjusted so $I_{R(peak)}$ is equal to 30 mA.
3. $t_p \gg t_{rr}$

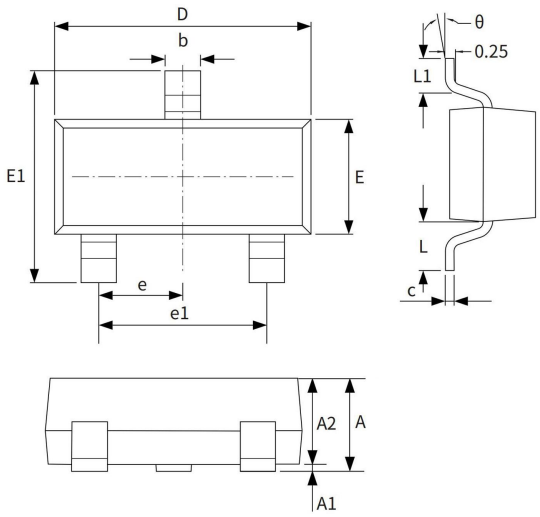
Figure 4. Recovery Time Equivalent Test Circuit

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Ordering Information

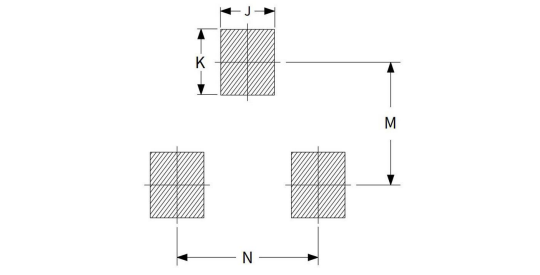
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOT-23	R1	0.008	3000	30000	240000	7''

Package Outline Dimensions (SOT-23)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.15	0.035	0.045
A1	-	0.10	-	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.50	0.012	0.020
c	0.10	0.20	0.004	0.008
D	2.80	3.00	0.110	0.118
E	1.20	1.40	0.047	0.055
E1	2.25	2.55	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.80	2.00	0.071	0.079
L	0.550REF		0.022REF	
L1	0.30	0.50	0.012	0.020
θ	-	8°	-	8°

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
J	0.75	0.85	0.030	0.033
K	0.85	0.95	0.033	0.037
M	1.95	2.05	0.077	0.081
N	1.85	1.95	0.073	0.077