

BAV70DW/BAV99DW/BAW56DW BAV99BRW/BAV756DW/BAW567DW

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Datasheet.Directory

BAV70DW/BAV99DW/BAW56DW BAV99BRW/BAV756DW/BAW567DW

200mW Surface Mount Switching Diode Array - 100V

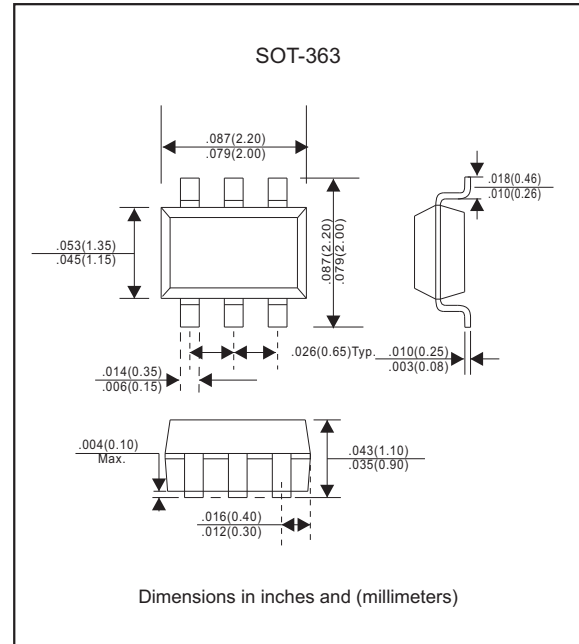
Features

- Fast speed switching.
- For general purpose switching application.
- High conductance.
- Easily connected as full wave bridge
- Silicon epitaxial planar chip.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free part, ex. BAV70DW-H

Mechanical data

- Epoxy: UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-363
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.006 gram

Package outline



Maximum ratings and Electrical Characteristics (AT $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	Symbol	Value	UNIT
Non-Repetitive Peak Reverse Voltage	V_{RM}	100	V
Peak Repetitive Reverse Voltage DC Blocking Voltage	V_{RRM} V_R	75	v
RMS Reverse Voltage	$V_{R(RSM)}$	53	V
Average Rectified Output Current (Note 1, 3)	I_O	150	mA
Non-Repetitive Forward Current @t=1.0us @t=1.0s	I_{FSM}	2.0 1.0	A
Typical Thermal Resistance Junction to Ambient (Note 1, 3)	$R_{\theta JA}$	625	$^\circ\text{C}/\text{W}$
Power Dissipation(Note 1, 3)	P_D	200	mW
Operating Temperature Range	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-65 ~ +150	$^\circ\text{C}$
Maximum Reverse Voltage Leakage Current (Note 2) at $V_R = 75\text{V}$ at $V_R = 20\text{V}$	I_R	2.5 25	μA nA
Maximum Total Capacitance, $V_R = 0\text{V}$, $f = 1.0\text{MHz}$	C_D	2.0	pF
Maximum Reverse Recovery Time ($I_F = I_R = 10\text{mA}$, $V_R = 5.0\text{Vdc}$, $I_{RR} = 1.0\text{mA}$, $R_L = 100\Omega$)	t_{rr}	4.0	ns
Maximum Forward Voltage (Note 2) at $I_F = 1.0\text{mA}$ at $I_F = 10\text{mA}$ at $I_F = 50\text{mA}$ at $I_F = 150\text{mA}$	V_F	715 855 1000 1250	mV

Note: 1. Device mounted on FR-4 PC board with recommended pad layout
2. Short duration test pulse used to minimize self-heating effect.
3. One or more diodes loaded.

Rating and characteristic curves for each diode (BAV70DW/BAV99DW/BAW56DW/BAV99BRW/BAV756DW/BAW567DW)

FIG.1-TYPICAL FORWARD CHARACTERISTICS

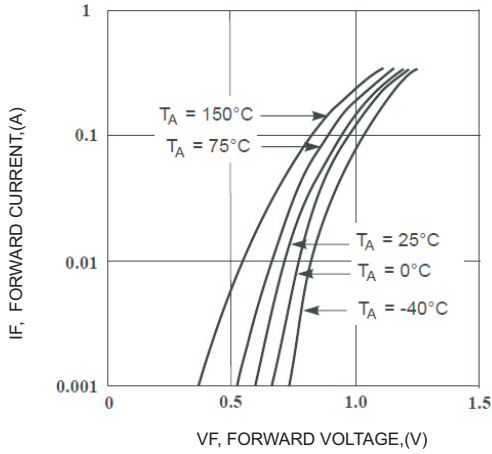


FIG.2 - LEAKAGE CURRENT

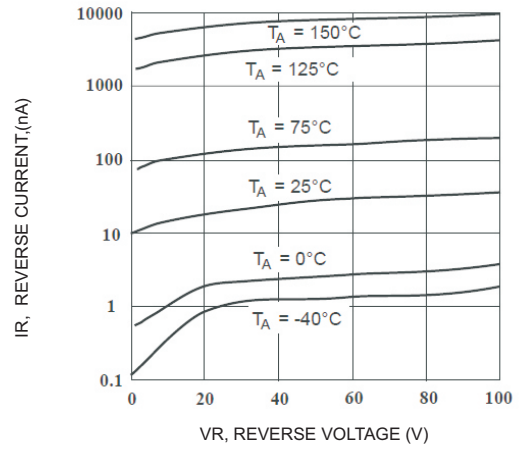


FIG.3 - TOTAL CAPACITANCE

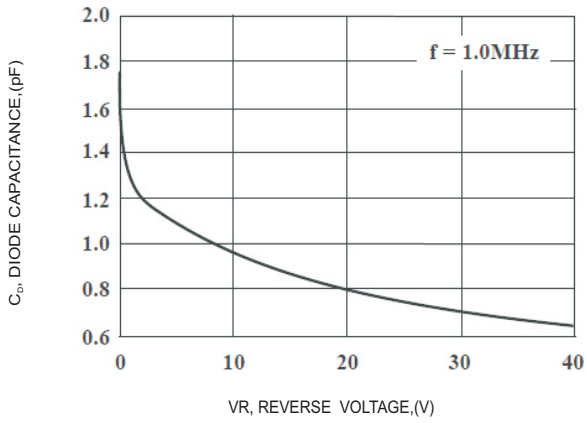
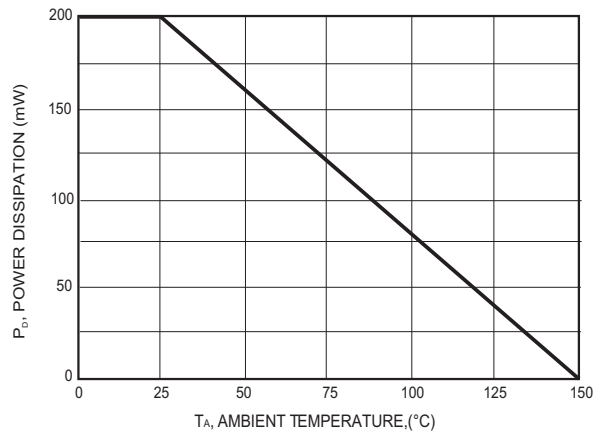


FIG.4 - POWER DERATING CURVE



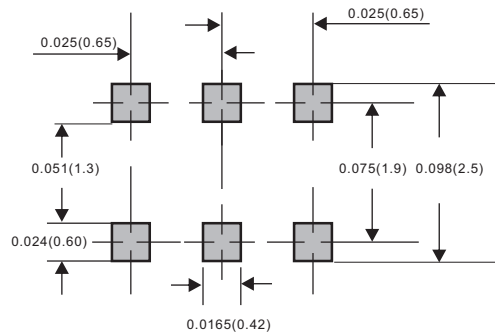
BAV70DW/BAV99DW/BAW56DW BAV99BRW/BAV756DW/BAW567DW

Pinning information

Type number	Marking code	Symbol	Type number	Marking code	Symbol
BAV70DW	KJA		BAV99BRW	KGJ	
BAV99DW	KJG		BAV756DW	KCA	
BAW56DW	KJC		BAW567DW	KAC	

Suggested solder pad layout

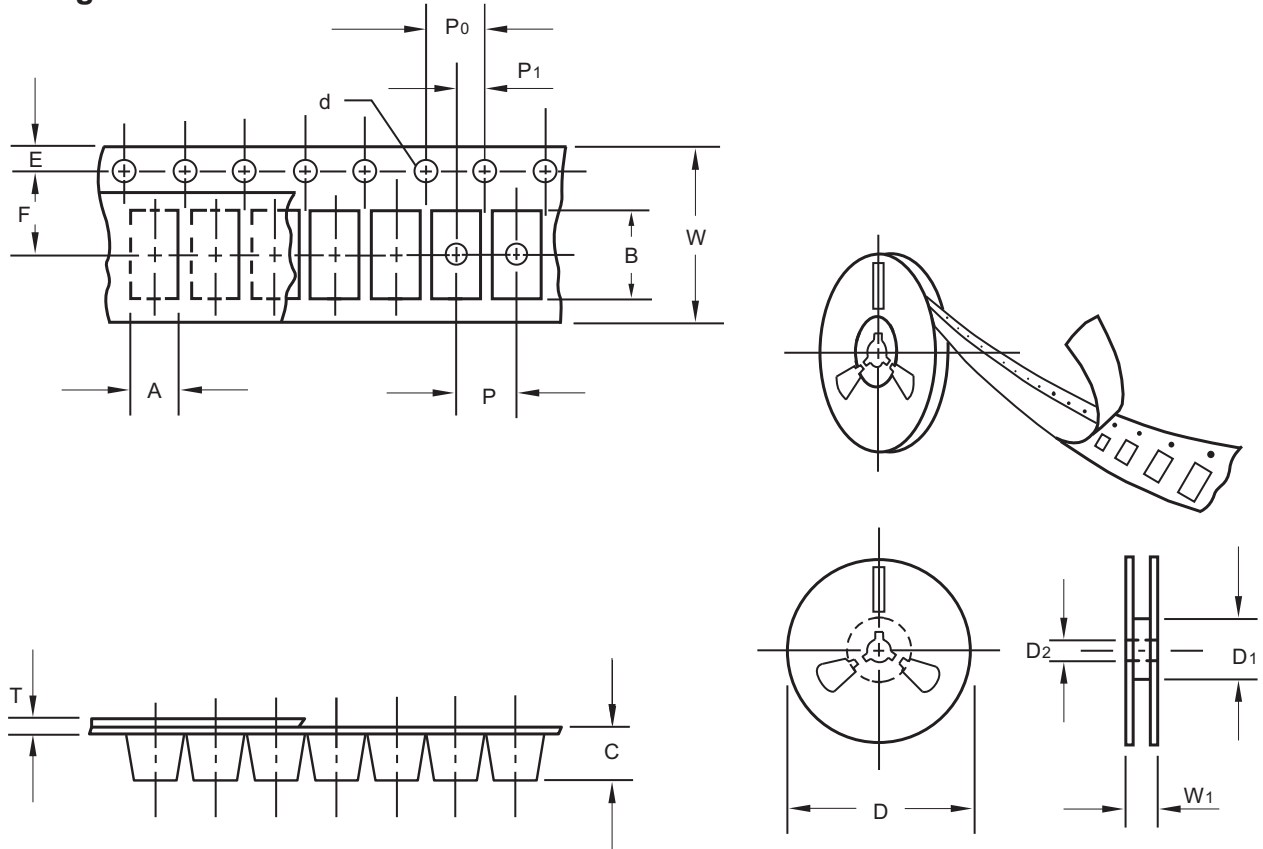
SOT-363



Dimensions in inches and (millimeters)

BAV70DW/BAV99DW/BAW56DW
BAV99BRW/BAV756DW/BAW567DW

Packing information



unit:mm

Item	Symbol	Tolerance	SOT-363
Carrier width	A	0.1	2.36
Carrier length	B	0.1	2.40
Carrier depth	C	0.1	1.20
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	62.00
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W1	1.0	11.40

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

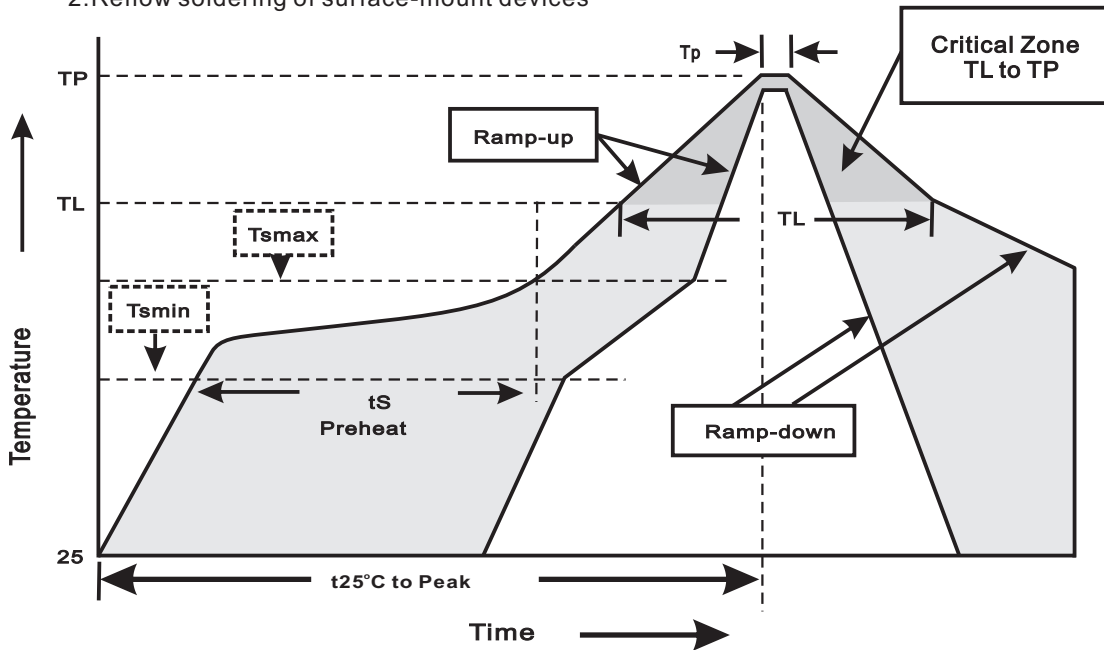
BAV70DW/BAV99DW/BAW56DW BAV99BRW/BAV756DW/BAW567DW

Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SOT-363	7"	3000	4.0	30,000	183*183*123	178	382*262*387	240,000	9.50

Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T _L to T _P)	<3°C/sec
Preheat -Temperature Min(T _{sm}) -Temperature Max(T _{smax}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smax} to T _L -Ramp-upRate	<3°C/sec
Time maintained above: -Temperature(T _L) -Time(t _L)	217°C 60~260sec
Peak Temperature(T _P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t _p)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at $260\pm 5^{\circ}\text{C}$ for $10\pm 2\text{sec}$. immerse body into solder $1/16''\pm 1/32''$	MIL-STD-750D METHOD-2031
2. Solderability	at $245\pm 5^{\circ}\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_R=80\%$ rate at $T_J=150^{\circ}\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at $T_A=25^{\circ}\text{C}$ for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	$T_A = 25^{\circ}\text{C}$, $I_F = I_O$ On state: power on for 5 min. off state: power off for 5 min. on and off for 500 cycles.	MIL-STD-750D METHOD-1036
6. Pressure Cooker	$15P_{SIG}$ at $T_A=121^{\circ}\text{C}$ for 4 hrs.	JESD22-A102
7. Temperature Cycling	-55°C to $+125^{\circ}\text{C}$ dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
8. Thermal Shock	0°C for 5 min. rise to 100°C for 5 min. total 10 cycles.	MIL-STD-750D METHOD-1056
9. Forward Surge	Peak Forward Current at $t=1\mu\text{s}$	MIL-STD-750D METHOD-4066-2
10. Humidity	at $T_A=85^{\circ}\text{C}$, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
11. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031