

BAV19 THRU BAV21

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BAV19 THRU BAV21

500mW Axial Leded Type Switching Diode- 100-200V

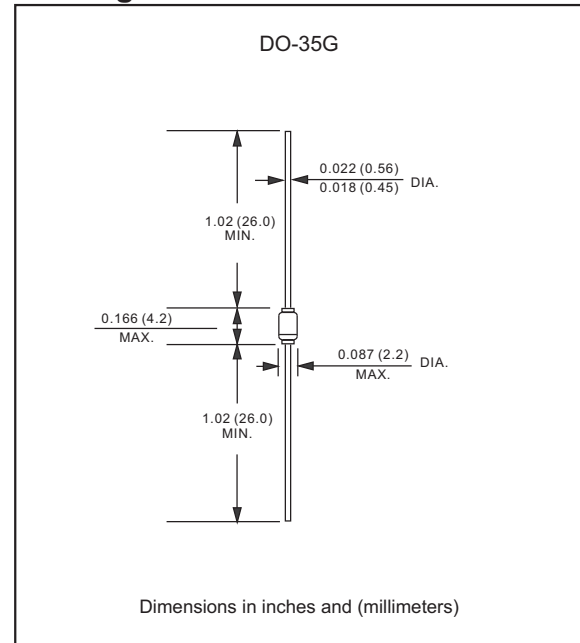
Features

- Axial lead type devices for through hole design.
- Fast speed switching.
- Silicon epitaxial planar chip structruction.
- Hermetically sealed glass.
- Lead-free parts meet RoHS requirments.

Mechanical data

- Case : Glass, DO-35G
- Lead : Axial leads, solderable per MIL-STD-202, Method 208 guaranteed
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.125 gram

Package outline



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

PARAMETER	CONDITIONS	TYPE	Symbol	Min.	Typ.	Max.	UNIT
Repetitive peak reverse voltage		BAV19 BAV20 BAV21	V_{RRM}			120 200 250	V
Reverse voltage		BAV19 BAV20 BAV21	V_R			100 150 200	V
Peak forward surge current	$t < 1s$		I_{FSM}			1000	mA
Repetitive peak forward current			I_{FRM}			625	mA
Forward DC current			I_F			250	mA
Average forward current			I_{FAV}			200	mA
Power dissipation			P_{tot}			500	mW
Operating junction temperature range			T_J	-55		+150	$^\circ\text{C}$
Storage temperature range			T_{STG}	-55		+150	$^\circ\text{C}$

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

PARAMETER	CONDITIONS	TYPE	Symbol	Min.	Typ.	Max.	UNIT
Forward voltage	$I_F = 100\text{ mA}$		V_F			1.00	V
Reverse current	$V_R = 100\text{ V}$, $T_J = 100^\circ\text{C}$ $V_R = 100\text{ V}$, $T_J = 100^\circ\text{C}$ $V_R = 150\text{ V}$, $T_J = 100^\circ\text{C}$ $V_R = 150\text{ V}$, $T_J = 100^\circ\text{C}$ $V_R = 200\text{ V}$, $T_J = 100^\circ\text{C}$ $V_R = 200\text{ V}$, $T_J = 100^\circ\text{C}$	BAV19 BAV19 BAV20 BAV20 BAV21 BAV21	I_R			100 15 100 15 100 15	nA μA nA μA nA μA
Dynamic forward resistance	$I_F = 10\text{ mA}$		r_f		5.0		Ω
Diode capacitance	$V_R = 0\text{ V}$, $f = 1\text{ MHz}$		C_D		1.5	4.0	pF
Reverse recovery time	$I_F = I_R = 30\text{ mA}$, $I_{rr} = 3\text{ mA}$, $R_L = 100\Omega$		t_{rr}			50	ns
Thermal resistance junction ambient	$l = 4\text{ mm}$, $TL = \text{constant}$		$R_{\theta JA}$			350	K/W

Rating and characteristic curves (BAV19 THRU BAV21)

FIG.1-MAXIMUM PERMISSIBLE CONTINUOUS
FORWARD CURRENT VS. AMBIENT TEMPERATURE

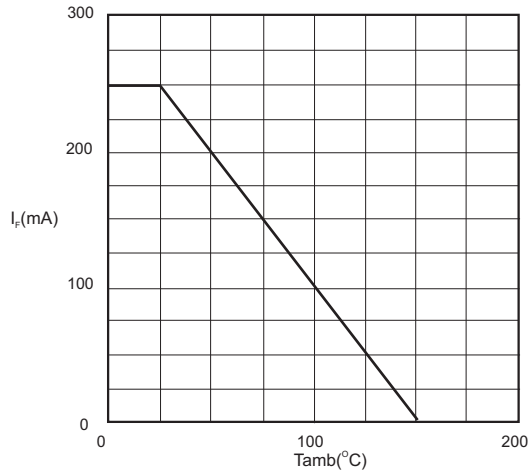


FIG.2 - FORWARD CURRENT VS. FORWARD VOLTAGE

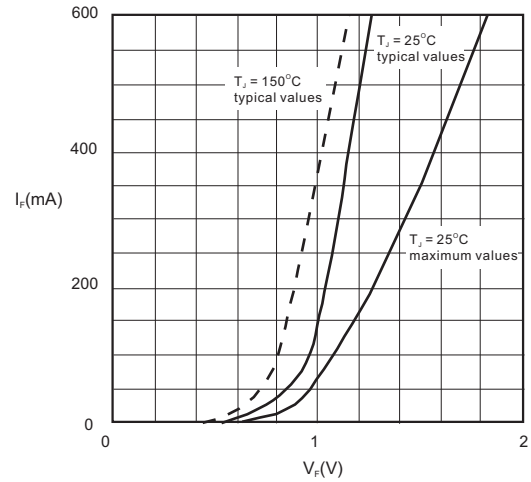


FIG.3 - REVERSE CURRENT VS.
JUNCTION TEMPERATURE

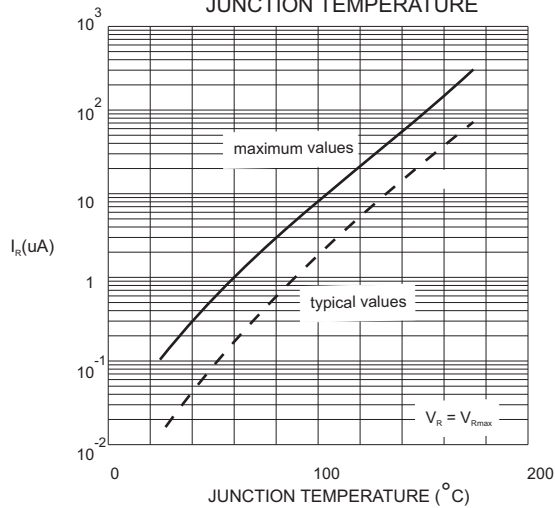


FIG.4 - DIODE CAPACITANCE VS. REVERSE VOLTAGE
(TYPICAL VALUES)

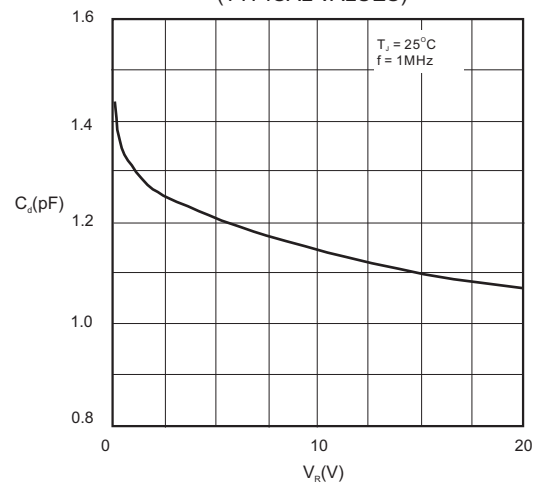
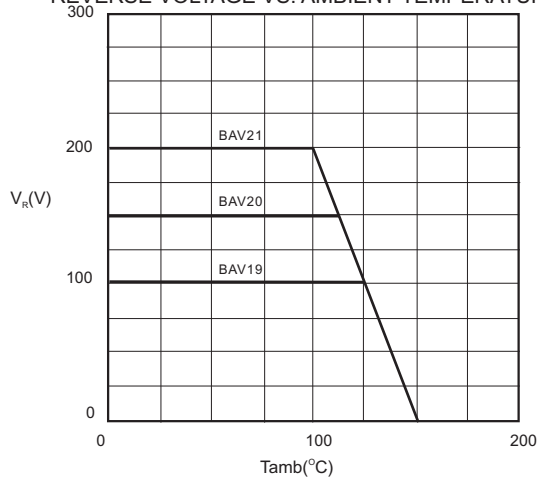


FIG.5 - MAXIMUM PERMISSIBLE CONTINUOUS
REVERSE VOLTAGE VS. AMBIENT TEMPERATURE



BAV19 THRU BAV21

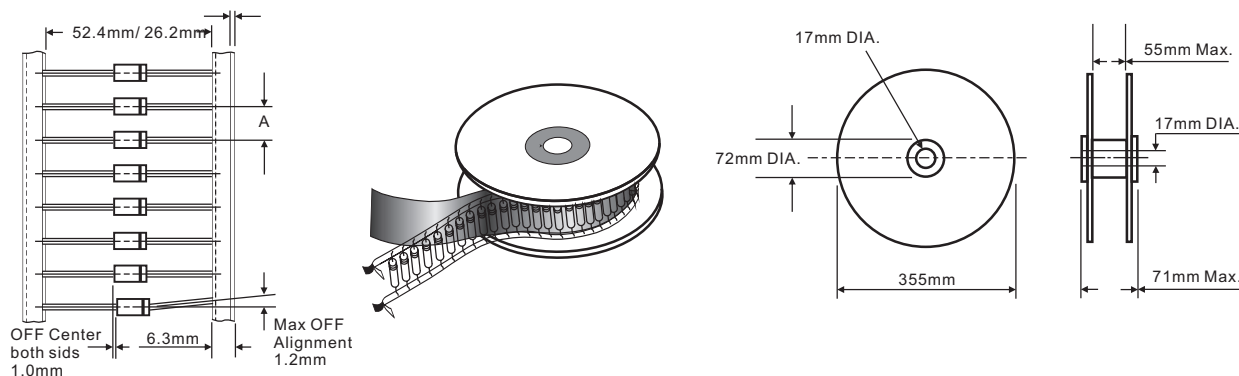
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode	1  2	1  2

Marking

Type number	Marking code
BAV19	BAV19
BAV20	BAV20
BAV21	BAV21

Taping & bulk specifications for AXIAL devices



REEL PACKING

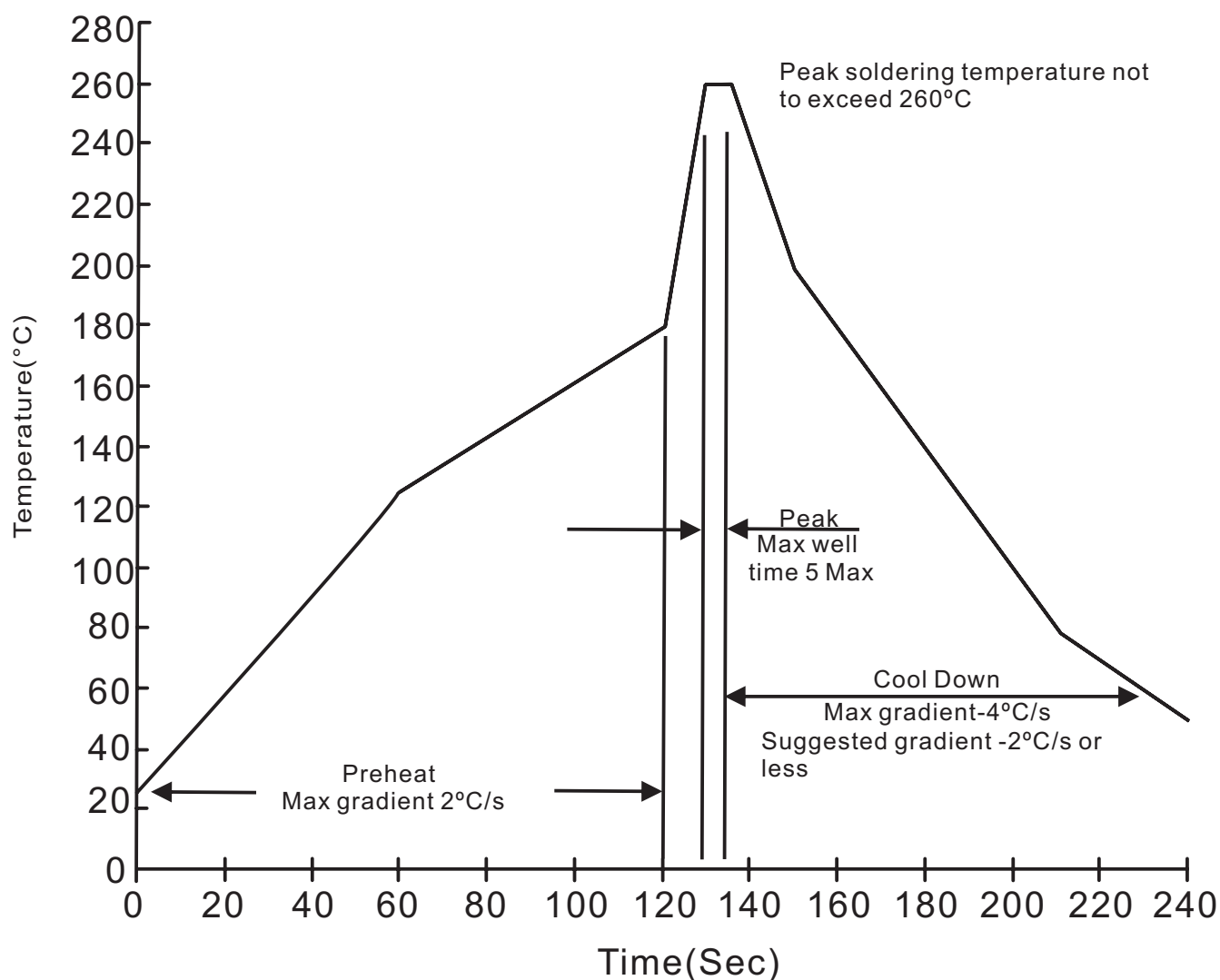
DEVICE CASE TYPE	Q'TY 1 (PCS / REEL)	COMPONENT SPACING "A" in FIG. A	CARTON SIZE (m/m)	Q'TY 2 (PCS / CARTON)	APPROX. CROSS WEIGHT(kg)
DO-35G/52mm	10,000	5 mm	360 * 360 * 395	50,000	11.4

AMMO PACKING

DEVICE CASE TYPE	Q'TY 1 (PCS / BOX)	INNER BOX SIZE (m/m)	CARTON SIZE (m/m)	Q'TY 2 (PCS / CARTON)	APPROX. CROSS WEIGHT(kg)
DO-35G/26mm	5,000	250 * 78 * 48	420 * 270 * 330	150,000	16.7
DO-35G/52mm	5,000	250 * 78 * 78	420 * 270 * 330	100,000	15.0

BAV19 THRU BAV21**BULK PACKING**

DEVICE CASE TYPE	Q'TY 1 (PCS / BOX)	INNER BOX SIZE (m/m)	CARTON SIZE (m/m)	Q'TY 2 (PCS / CARTON)	APPROX. CROSS WEIGHT(kg)
DO-35G	2,000	96 * 80 * 42	410 * 335 * 265	120,000	17.4

Suggested thermal profiles for soldering processes**1. Lead free temperature profile wave-soldering**

BAV19 THRU BAV21**High reliability test capabilities**

Item Test	Conditions	Reference
1. Solder Resistance	at $260\pm5^{\circ}\text{C}$ for $10\pm2\text{sec.}$ immerse body into solder $1/16''\pm1/32''$	MIL-STD-750D METHOD-2031
2. Solderability	at $245\pm5^{\circ}\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. Pull Test	0.25kg in axial lead direction for 10 sec.	MIL-STD-750D METHOD-2036
4. Bend Lead	0.25kg weight applied to each lead bending arc $90^{\circ}\pm5^{\circ}$ for 3 times.	MIL-STD-750D METHOD-2036
5. High Temperature Reverse Bias	$V_R=80\%$ rate at $T_J=150^{\circ}\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
6. Forward Operation Life	Rated average rectifier current at $T_A=25^{\circ}\text{C}$ for 500hrs.	MIL-STD-750D METHOD-1027
7. 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
8. Pressure Cooker	$15P_{SIG}$ at $T_A=121^{\circ}\text{C}$ for 4 hrs.	JESD22-A102
9. 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
10. Forward Surge	Peak forward surge current	MIL-STD-750D METHOD-4066-2
11. Humidity	at $T_A=85^{\circ}\text{C}$, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
12. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031