

1N4148

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150mA Axial Led Type Switching Diode-100V

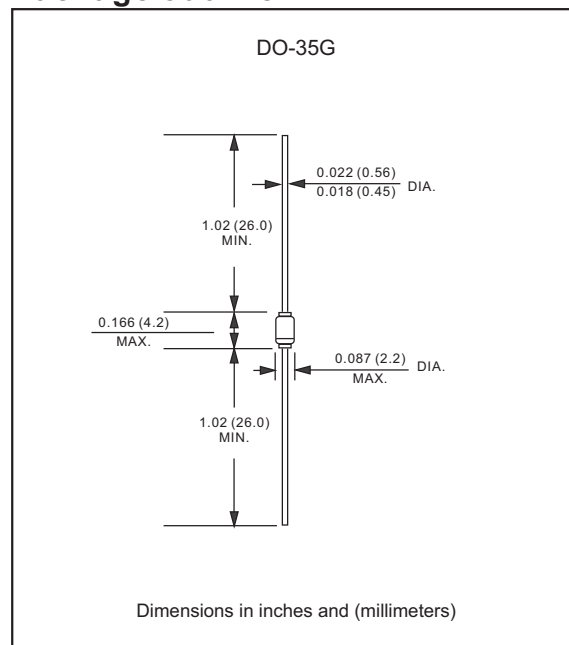
Features

- Axial lead type devices for through hole design
- Fast speed switching
- Silicon epitaxial planar chip struction
- 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	Symbol	MIN.	TYP.	MAX.	UNIT
Repetitive peak reverse voltage		V_{RRM}			100	V
Reverse voltage		V_R			75	V
Peak forward surge current	$t_p=1\mu s$	I_{FSM}			2.0	A
Repetitive peak forward current		I_{FRM}			500	mA
Forward continuous current		I_F			300	mA
Average forward current		$I_{F(AV)}$			150	mA
Power dissipation		P_D			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	Symbol	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F=10\text{mA}$	V_F		0.86	1.00	V
Reverse current	$V_R=20\text{V}$	I_R			25	nA
	$V_R=20\text{V}, T_J=150^{\circ}\text{C}$	I_R			50	μA
	$V_R=75\text{V}$	I_R			5.0	μA
Breakdown voltage	$I_R=100\mu\text{A}, t_p/T=0.01, t_p=0.3\text{ms}$	$V_{(BR)}$	100			V
Diode capacitance	$V_R=0\text{V}, f=1\text{MHz}, V_{HF}=50\text{mV}$	C_D			4.0	pF
Rectification efficiency	$V_{HF}=2\text{V}, f=100\text{MHz}$	η_r	45			%
Reverse recovery time	$I_F=I_R=10\text{mA}, I_{RR}=1\text{mA}$	t_{rr}			8.0	ns
	$I_F=10\text{mA}, V_R=6\text{V}, I_{RR}=0.1 \times I_R, R_L=100\Omega$	t_{rr}			4.0	ns

Rating and characteristic curves (1N4148)

FIG.1-TYPICAL FORWARD CHARACTERISTICS

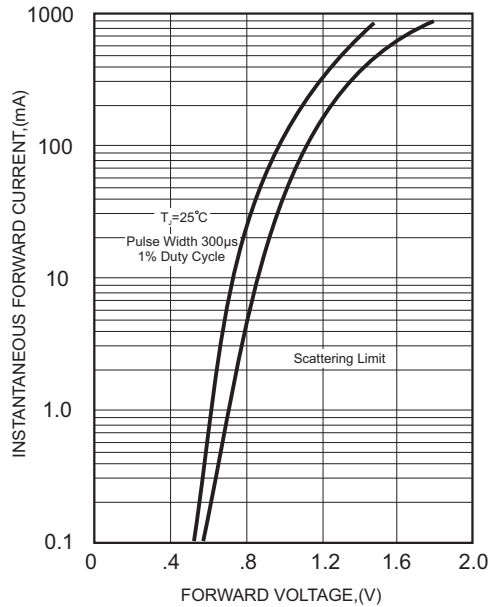


FIG.3 - TYPICAL REVERSE CHARACTERISTICS

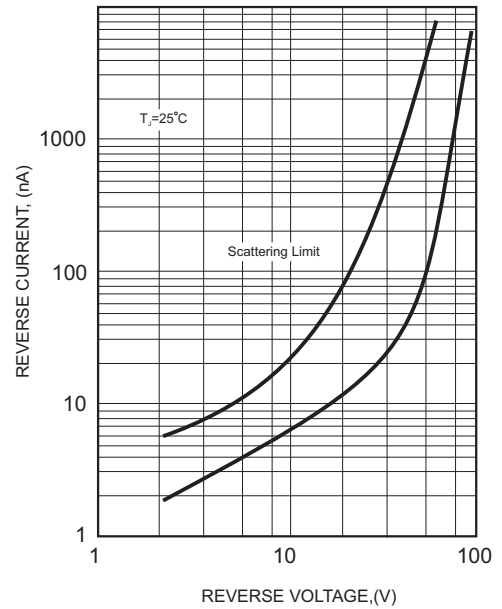


FIG.2 - TYPICAL DIODE CAPACITANCE

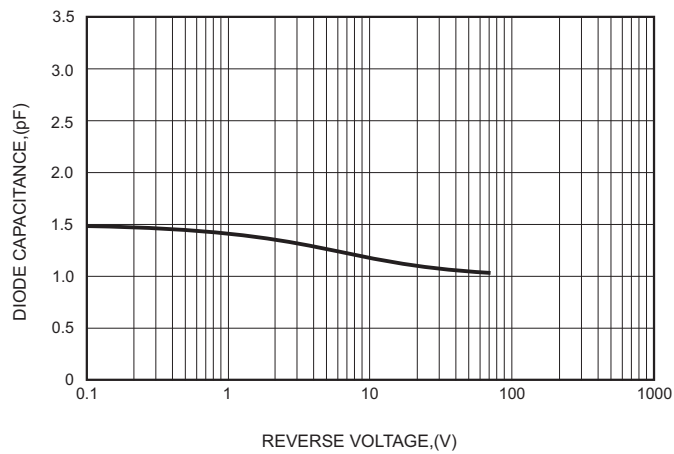
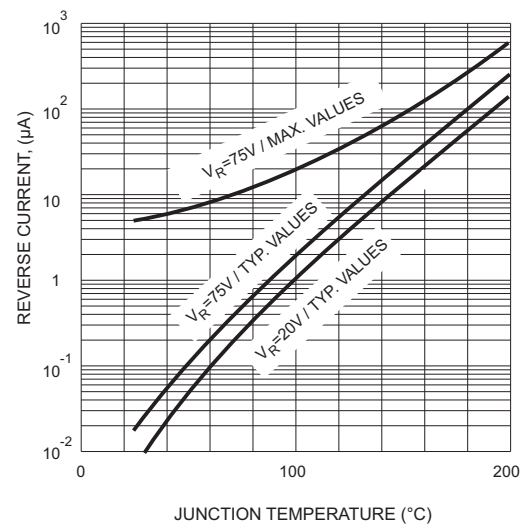


FIG.4 - REVERSE CURRENT VS. JUNCTION TEMPERATURE



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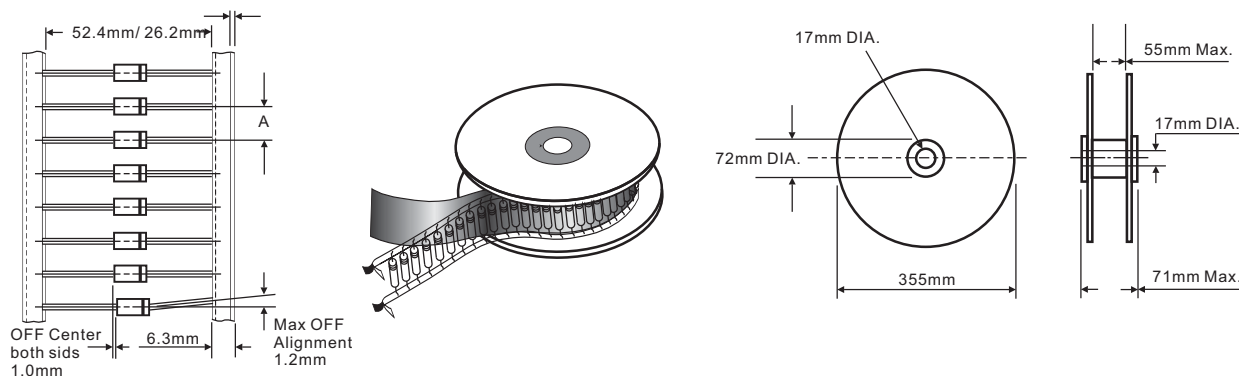
Pinning information

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

Marking

Type number	Marking code
1N4148	1N4148

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

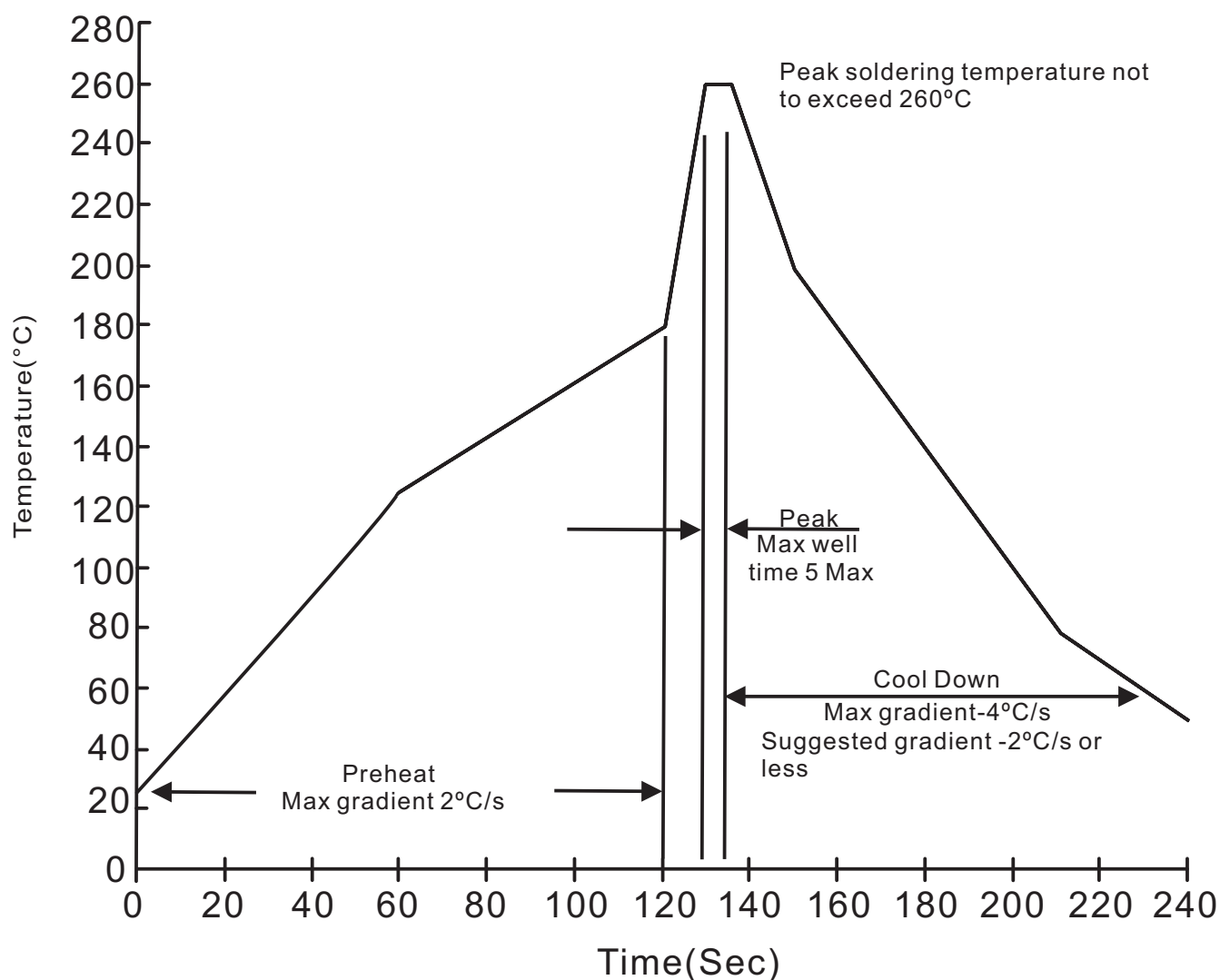
AMMO PACKING

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

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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**

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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. 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 $90^{\circ}\pm 5^{\circ}$ 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 $t_p = 1 \mu\text{s}$	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