

SR820 THRU SR8150

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SR820 THRU SR8150

8.0A Axial Leaded Schottky Barrier Rectifiers - 20V-150V

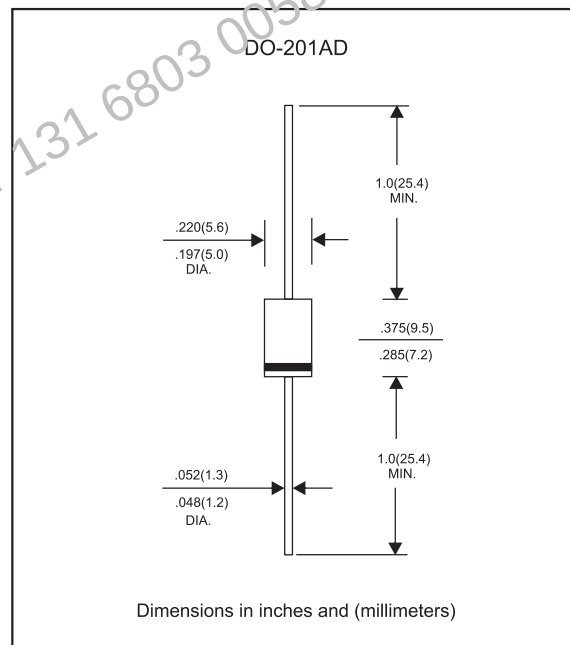
Features

- Axial lead type devices for through hole design
- Low power loss, high efficiency.
- High current capability, low forward voltage drop.
- High surge capability.
- Guardring for overvoltage protection.
- Ultra high-speed switching.
- Silicon epitaxial planar chip, metal silicon junction.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228
- Suffix "-H" for Halogen-free part, ex.SR820-H

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, DO-201AD
- Lead : Axial leads, solderable per MIL-STD-202, Method 208 guranteed
- Polarity: Color band denotes cathode end
- Mounting Position : Any
- Weight : Approximated 1.10 gram

Package outline



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

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Forward rectified current	See Fig.2	I_O			8.0	A
Forward surge current	8.3ms single half sine-wave superimposed on rate load (JEDEC methode)	I_{FSM}			150	A
Reverse current	$V_R = V_{RRM} \quad T_J = 25^{\circ}\text{C}$	I_R			0.5	mA
	$V_R = V_{RRM} \quad T_J = 100^{\circ}\text{C}$				50	
Thermal resistance	Junction to ambient	$R_{\theta JA}$		30		$^{\circ}\text{C/W}$
Diode junction capacitance	f=1MHz and applied 4V DC reverse voltage	C_J		550		pF
Storage temperature		T_{STG}	-65		+175	$^{\circ}\text{C}$

SYMBOLS	V _{RRM} ^{*1} (V)	V _{RMS} ^{*2} (V)	V _R ^{*3} (V)	V _F ^{*4} (V)	Operating temperature T _J , (°C)
SR820	20	14	20	0.55	-55 to +125
SR830	30	21	30		
SR840	40	28	40		
SR850	50	35	50	0.70	-55 to +150
SR860	60	42	60		
SR880	80	56	80	0.85	
SR8100	100	70	100		
SR8150	150	105	150	0.90	

*1 Repetitive peak reverse voltage

*2 RMS voltage

*3 Continuous reverse voltage

*4 Maximum forward voltage@ $I_F=8.0\text{A}$

Rating and characteristic curves (SR820 THRU SR8150)

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

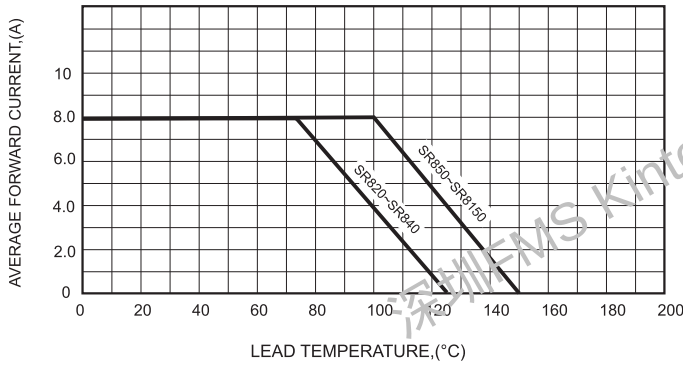


FIG.2-TYPICAL FORWARD CHARACTERISTICS

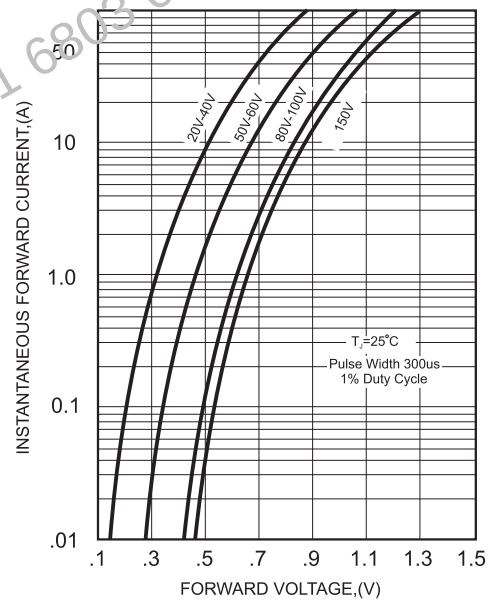


FIG.3-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

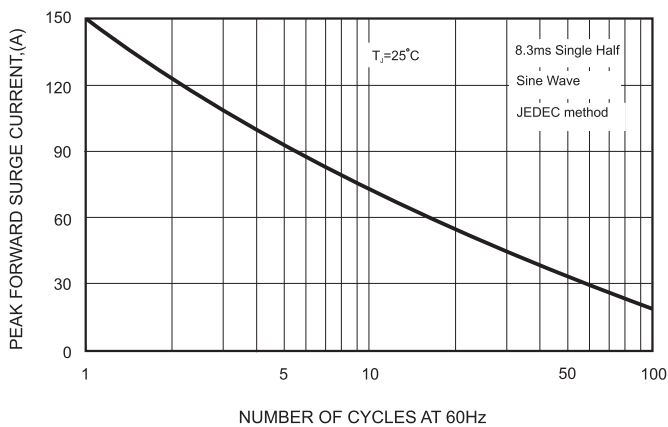


FIG.4-TYPICAL JUNCTION CAPACITANCE

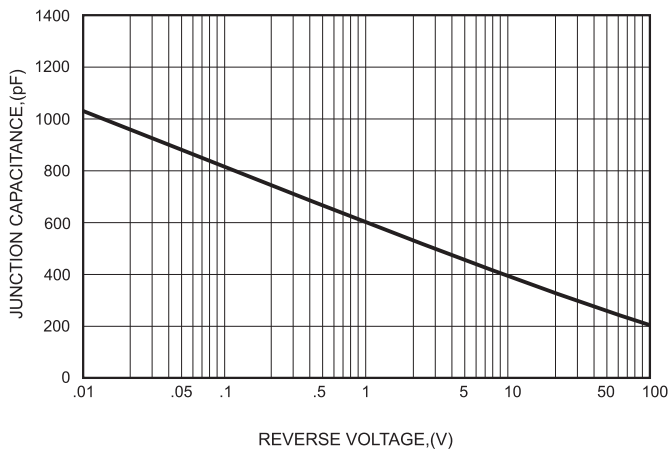
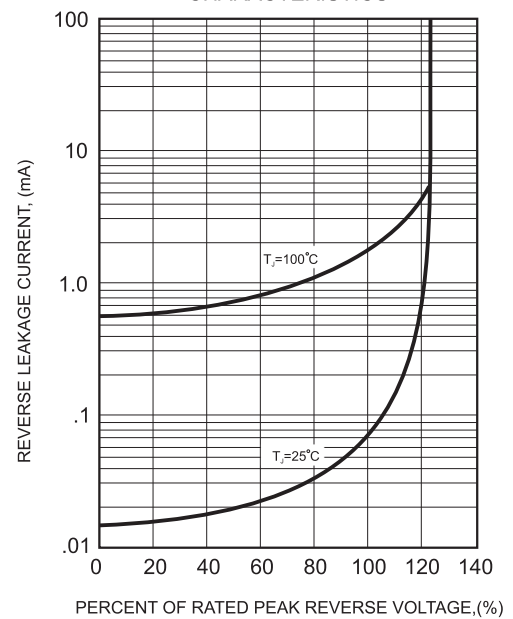


FIG.5 - TYPICAL REVERSE CHARACTERISTICS



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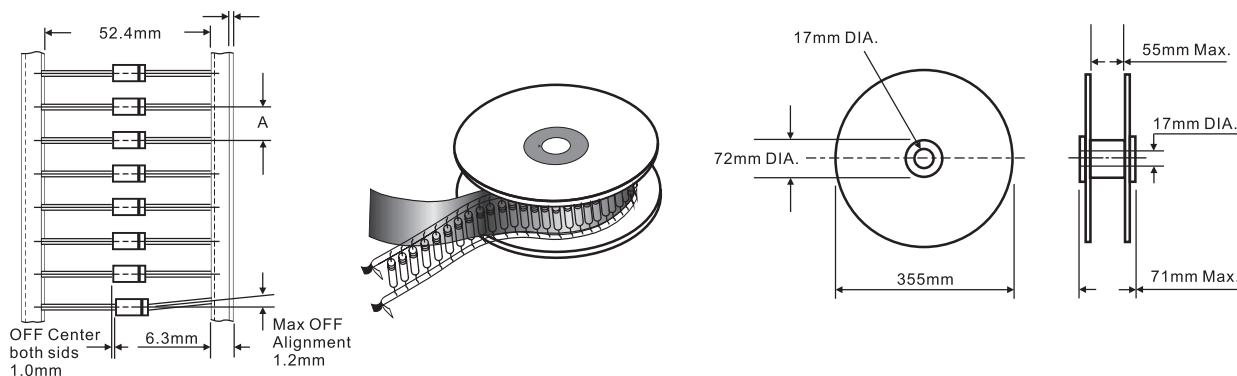
Pinning information

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

Marking

Type number	Marking code
SR820	SR820
SR830	SR830
SR840	SR840
SR850	SR850
SR860	SR860
SR880	SR880
SR8100	SR8100
SR8150	SR8150

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-201AD	1,200	10 mm	380 * 340 * 370	4,800	9.1

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-201AD	1,200	260 * 83 * 160	440 * 270 * 340	12,000	17.0

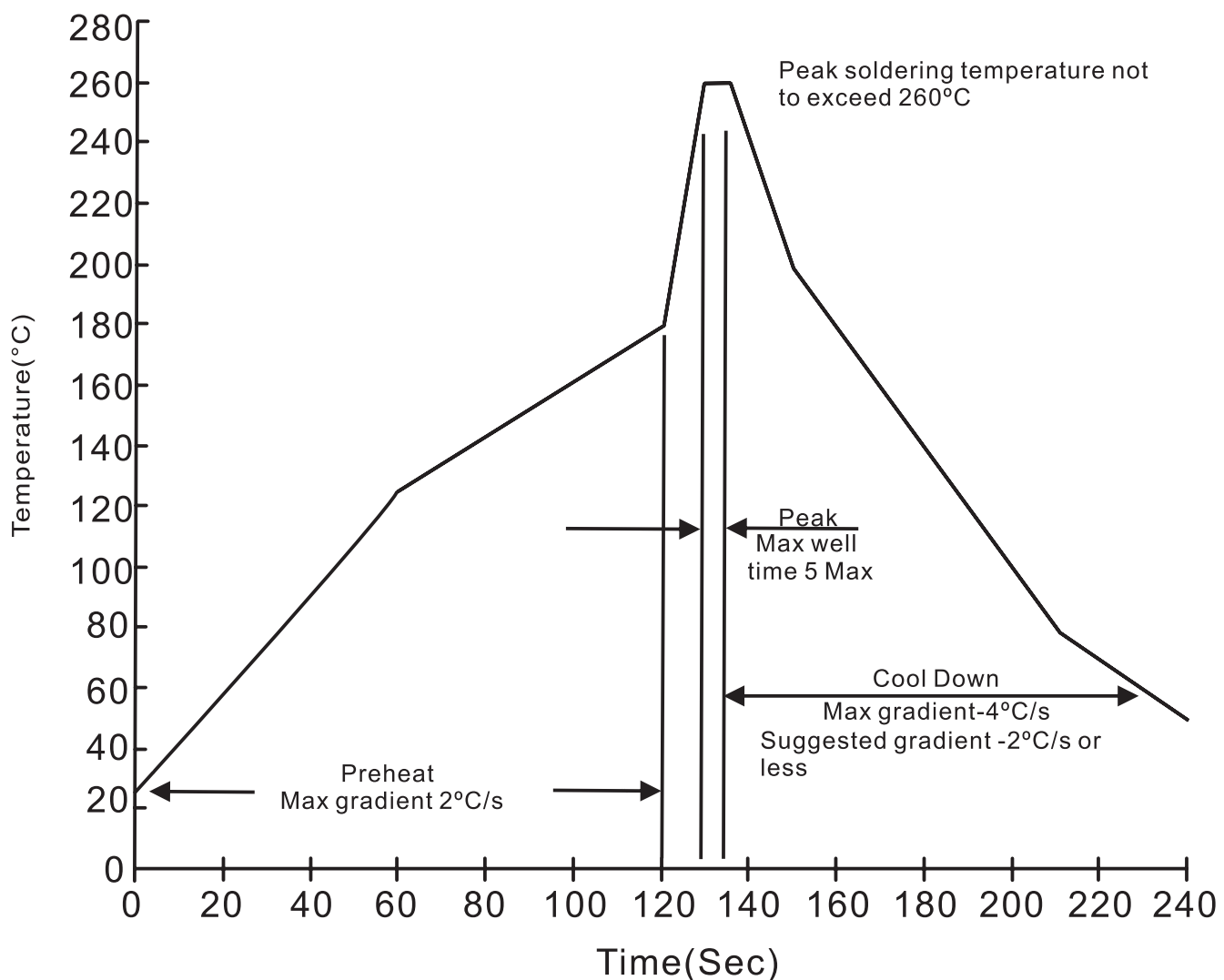
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BULK PACKING

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-201AD	500	305 * 73 * 40	347 * 320 * 271	12,000	16.4

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	2kg in axial lead direction for 10 sec.	MIL-STD-750D METHOD-2036
4. Bend Lead	2kg 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 $T_J=125^{\circ}\text{C}$ 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. Thermal Shock	0°C for 5 min. rise to 100°C for 5 min. total 10 cycles.	MIL-STD-750D METHOD-1056
11. Forward Surge	8.3ms single half sine-wave superimposed on rated load, one surge.	MIL-STD-750D METHOD-4066-2
12. Humidity	at $T_A=85^{\circ}\text{C}$, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
13. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031