HER501 THRU HER508

List

List..... 1

Package outline..... 2

Features..... 2

Mechanical data..... 2

Maximum ratings 2

Rating and characteristic curves..... 3

Pinning information.....4

Marking..... 4

Taping & bulk specifications for AXIAL devices..... 4

Suggested thermal profiles for soldering processes..... 5

High reliability test capabilities.....6

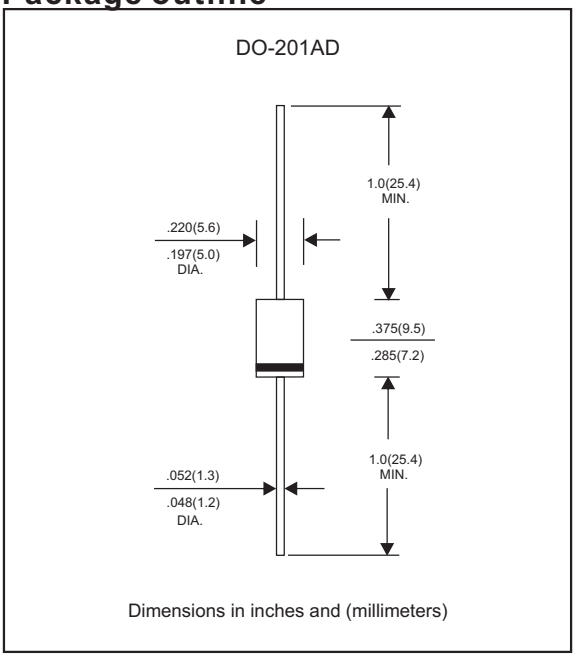
HER501 THRU HER508

5.0A Axial Leaded High Efficiency Rectifiers-50-1000V

Features

- Axial lead type devices for through hole design.
- High current capability.
- Ultrafast recovery time for high efficiency.
- High surge capability.
- Silicon rubber coating chip junction.
- Lead-free parts meet RoHS requirments.
- Suffix "-H" indicates Halogen free parts, ex. HER501-H.

Package outline



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

Maximum ratings and Electrical Characteristics (AT T_A=25°C unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Forward rectified current	Ambient temperature = 50°C	I_O			5.0	A
Forward surge current	8.3ms single half sine-wave (JEDEC methode)	I_{FSM}			200	A
Reverse current	V_R = V_{RRM} T_J = 25°C	I_R			5.0	μA
	V_R = V_{RRM} T_J = 100°C				100	
Diode junction capacitance	f=1MHz and applied 4V DC reverse voltage	C_J		75		pF
Storage temperature		T_{STG}	-65		+175	°C

SYMBOLS	V_{RRM} *1 (V)	V_{RMS} *2 (V)	V_R *3 (V)	V_F *4 (V)	t_{rr} *5 (ns)	Operating temperature T_J, (°C)
HER501	50	35	50	1.00	50	-55 to +125
HER502	100	70	100			
HER503	200	140	200			
HER504	300	210	300	1.30		
HER505	400	280	400			
HER506	600	420	600	1.85	75	
HER507	800	560	800			
HER508	1000	700	1000			

*1 Repetitive peak reverse voltage

*2 RMS voltage

*3 Continuous reverse voltage

*4 Maximum forward voltage@I_F=5.0A

*5 Maximum Reverse recovery time, note 1

Note 1. Reverse recovery time test condition, I_F=0.5A, I_R=1.0A, I_{RR}=0.25A

Rating and characteristic curves (HER501 THRU HER508)

Fig.1 - Forward Current Derating Curve

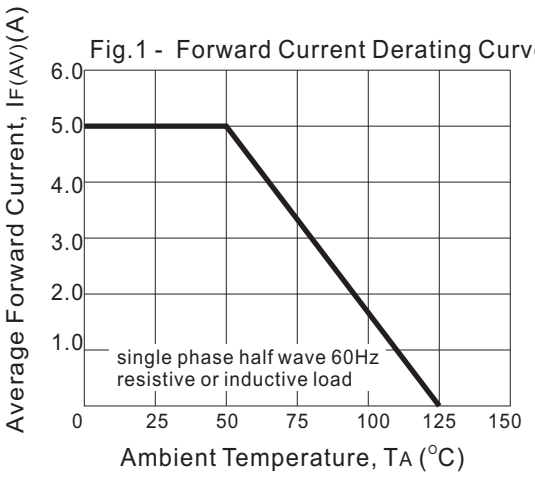


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

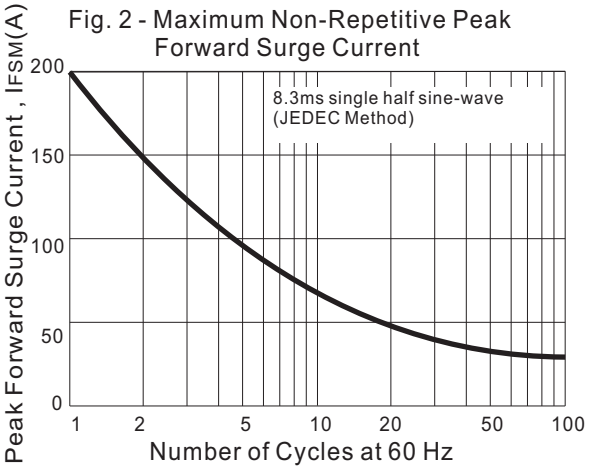


Fig. 3 - Typical Instantaneour Forward Characteristics

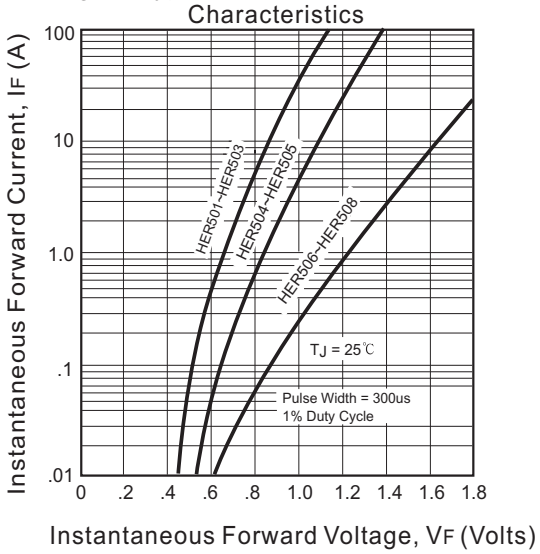


Fig. 4 - Typical Reverse Characteristics

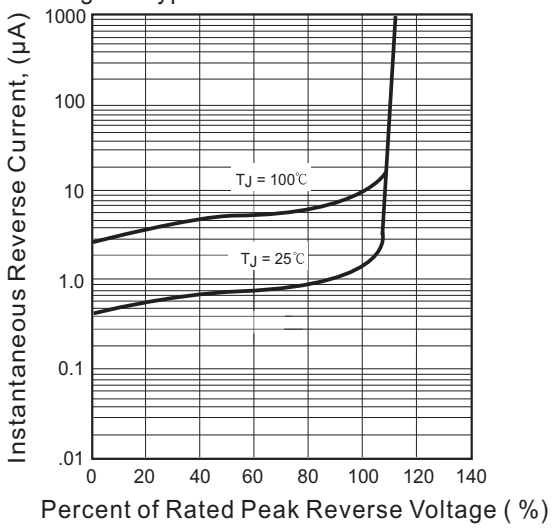


Fig. 5 - Typical Junction Capacitance

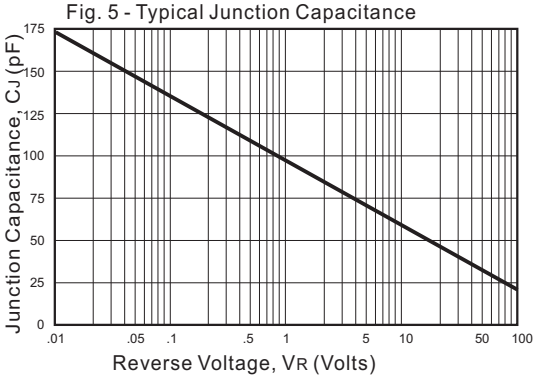
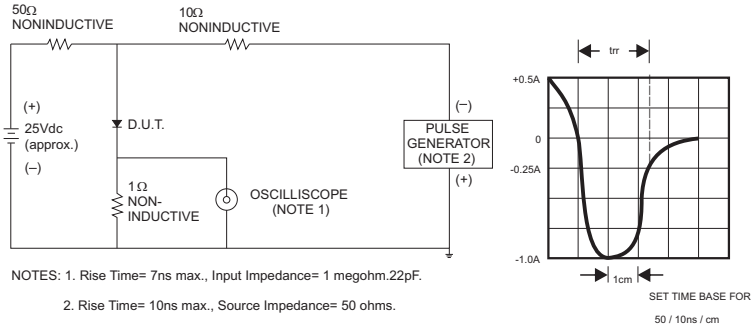


Fig. 6 - Test Circuit Diagram and Reverse Recovery Time Characteristic



NOTES: 1. Rise Time= 7ns max., Input Impedance= 1 megohm.22pF.

2. Rise Time= 10ns max., Source Impedance= 50 ohms.

HER501 THRU HER508

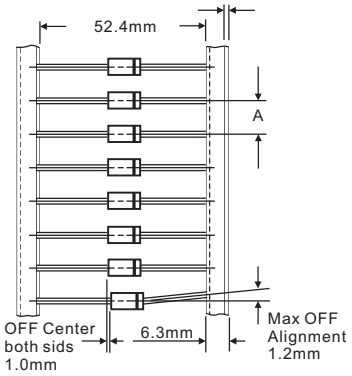
Pinning information

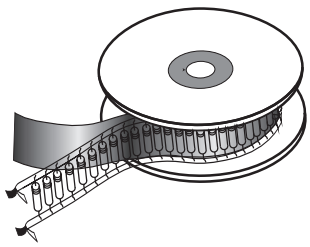
Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

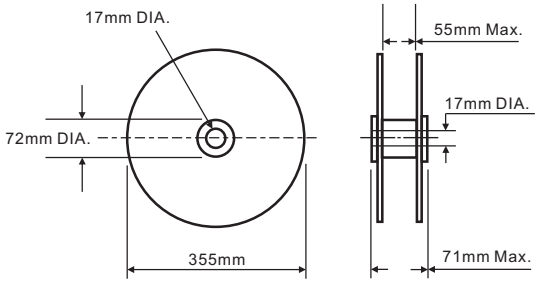
Marking

Type number	Marking code
HER501	HER501
HER502	HER502
HER503	HER503
HER504	HER504
HER505	HER505
HER506	HER506
HER507	HER507
HER508	HER508

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

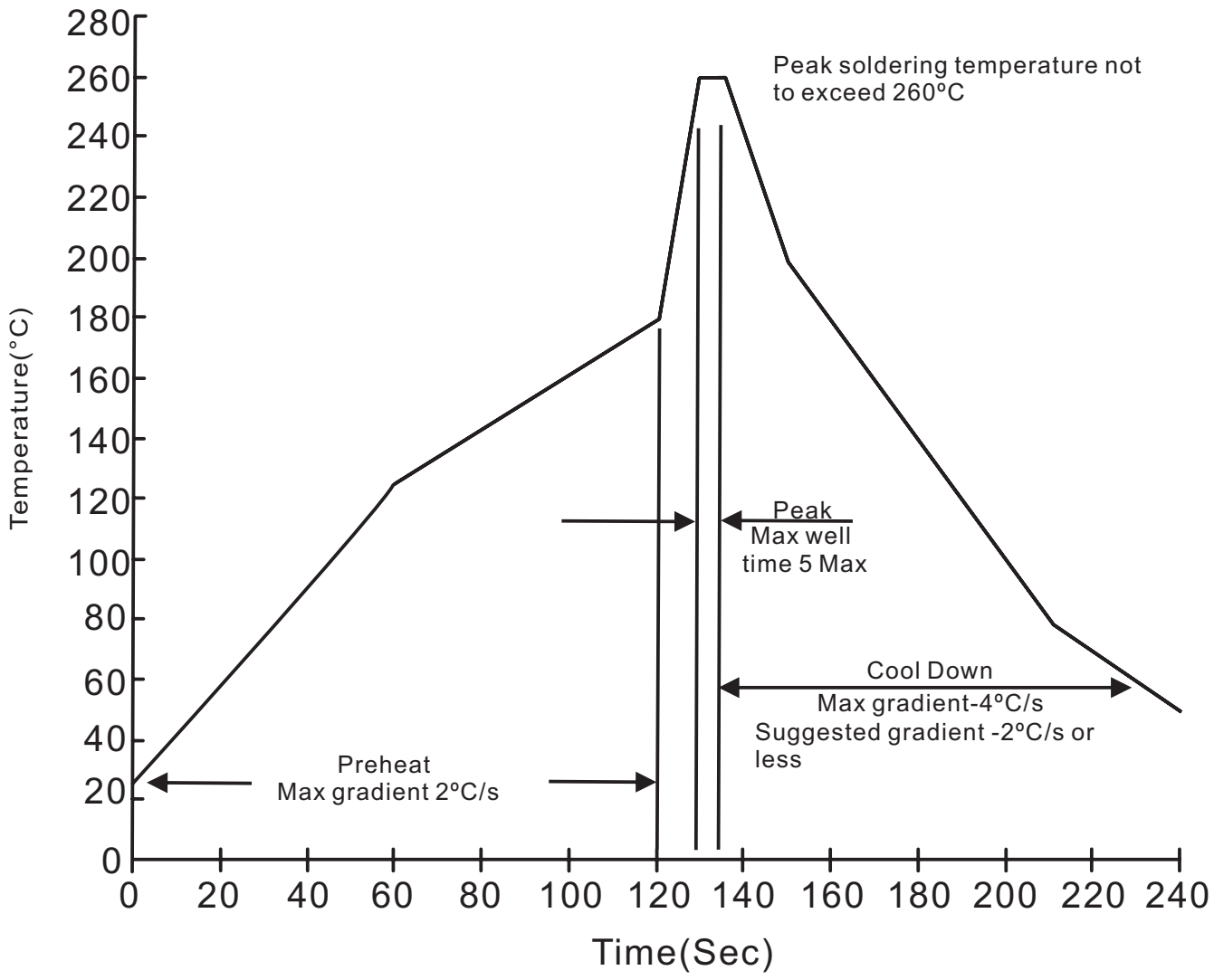
HER501 THRU HER508

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



HER501 THRU HER508

High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec. immerse body into solder 1/16"±1/32"	MIL-STD-750D METHOD-2031
2. Solderability	at 245±5°C for 5 sec.	MIL-STD-202F METHOD-208
3. Pull Test	2.0kg in axial lead direction for 10 sec. $I_F=I_O$	MIL-STD-202F METHOD-211A
4. Bend Lead	2.0kg weight applied to each lead bending arc 90°±5° for 3 times	MIL-STD-202F METHOD-211A
5. High Temperature Reverse Bias	V_R=80% rate at T_J=125°C for 168 hrs.	MIL-STD-750D METHOD-1038
6. Forward Operation Life	Rated average rectifier current at T_A=25°C for 500hrs.	MIL-STD-750D METHOD-1027
7. Intermittent Operation Life	T_A = 25°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°C for 4 hrs.	JESD22-A102
9. Temperature Cycling	-55°C to +125°C dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
10. Forward Surge	8.3ms single half sine-wave one surge.	MIL-STD-750D METHOD-4066-2
11. Humidity	at T_A=85°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