SF31 THRU SF38

List

SF31 THRU SF38

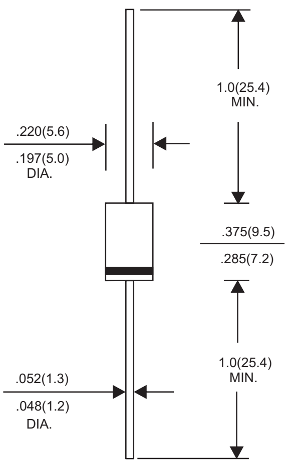
3.0A Axial Leaded Super Fast Rectifiers-50-600V

Features

- Axial lead type devices for through hole design
- High current capability.
- Superfast recovery time for switching mode application,
- High surge capability.
- Silicon rubber coating chip junction.
- Lead-free parts meet RoHS requirments.
- Suffix "-H" indicates Halgoen free parts, ex. SF31-H.

Package outline

DO-201AD



Dimensions in inches and (millimeters)

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 = 55°C	I_O			3.0	A
Forward surge current	8.3ms single half sine-wave (JEDEC methode)	I_{FSM}			125	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		50		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)
SF31	50	35	50	0.95	35	-55 to +125
SF32	100	70	100			
SF33	150	105	150			
SF34	200	140	200			
SF35	300	210	300	1.25		
SF36	400	280	400			
SF37	500	350	500	1.70		
SF38	600	420	600			

*1 Repetitive peak reverse voltage

*2 RMS voltage

*3 Continuous reverse voltage

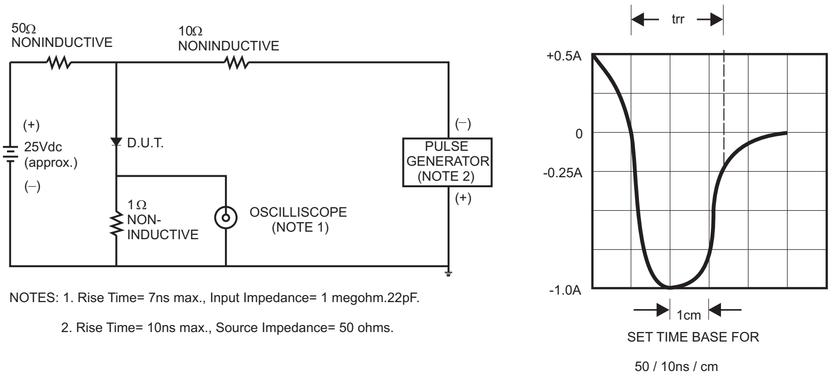
*4 Maximum forward voltage@I_F=3.0A

*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 (SF31 THRU SF38)

FIG.1- 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.

FIG.2-TYPICAL FORWARD CURRENT DERATING CURVE

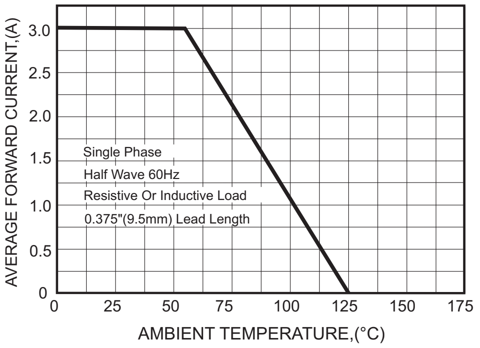


FIG.3-TYPICAL FORWARD CHARACTERISTICS

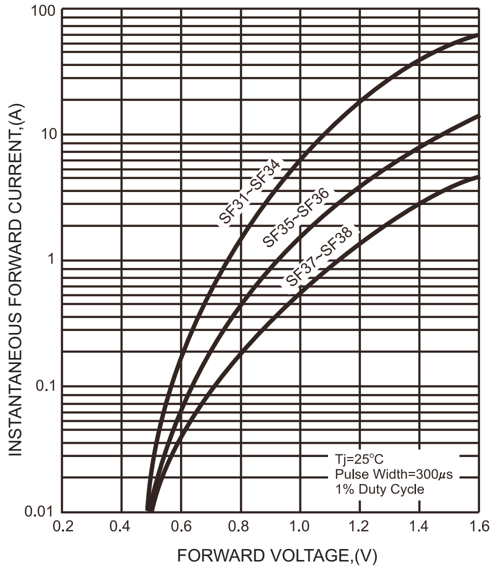


FIG.4-TYPICAL REVERSE CHARACTERISTICS

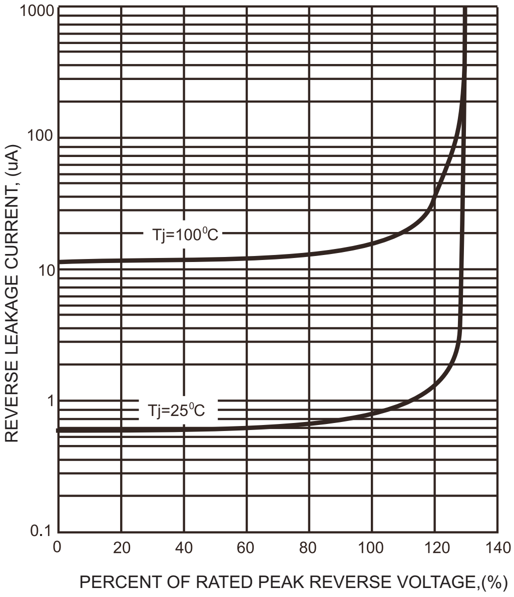


FIG.5-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

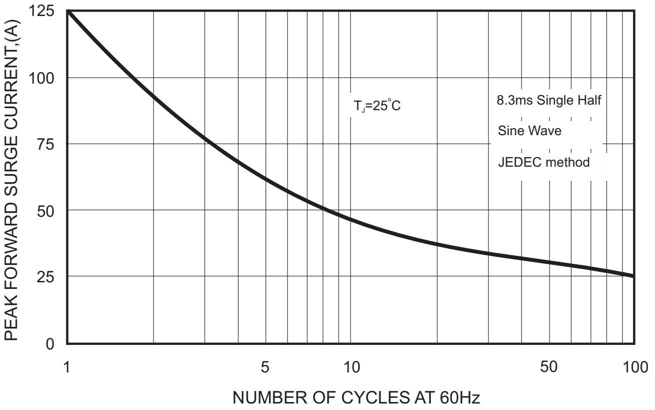
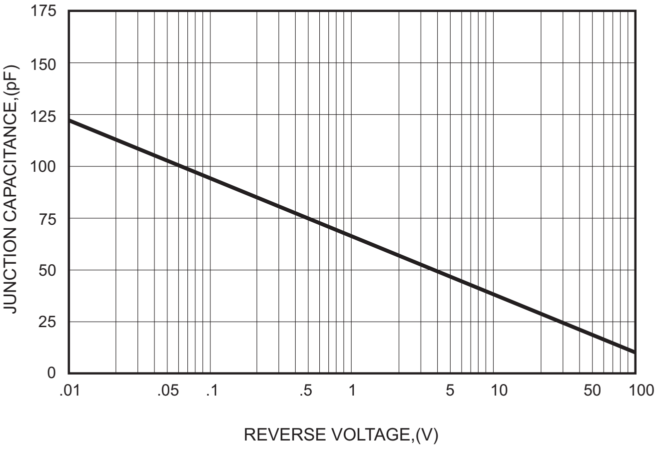


FIG.6-TYPICAL JUNCTION CAPACITANCE



SF31 THRU SF38

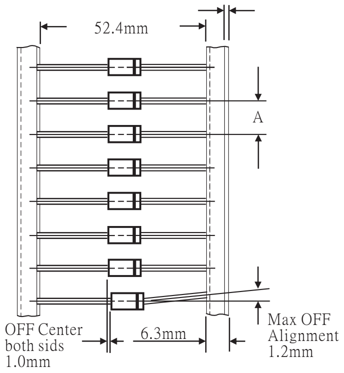
Pinning information

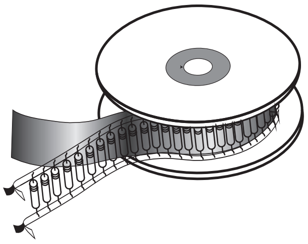
Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

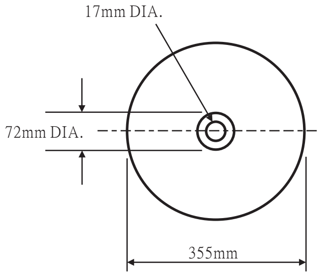
Marking

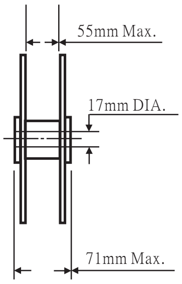
Type number	Marking code
SF31	SF31
SF32	SF32
SF33	SF33
SF34	SF34
SF35	SF35
SF36	SF36
SF37	SF37
SF38	SF38

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

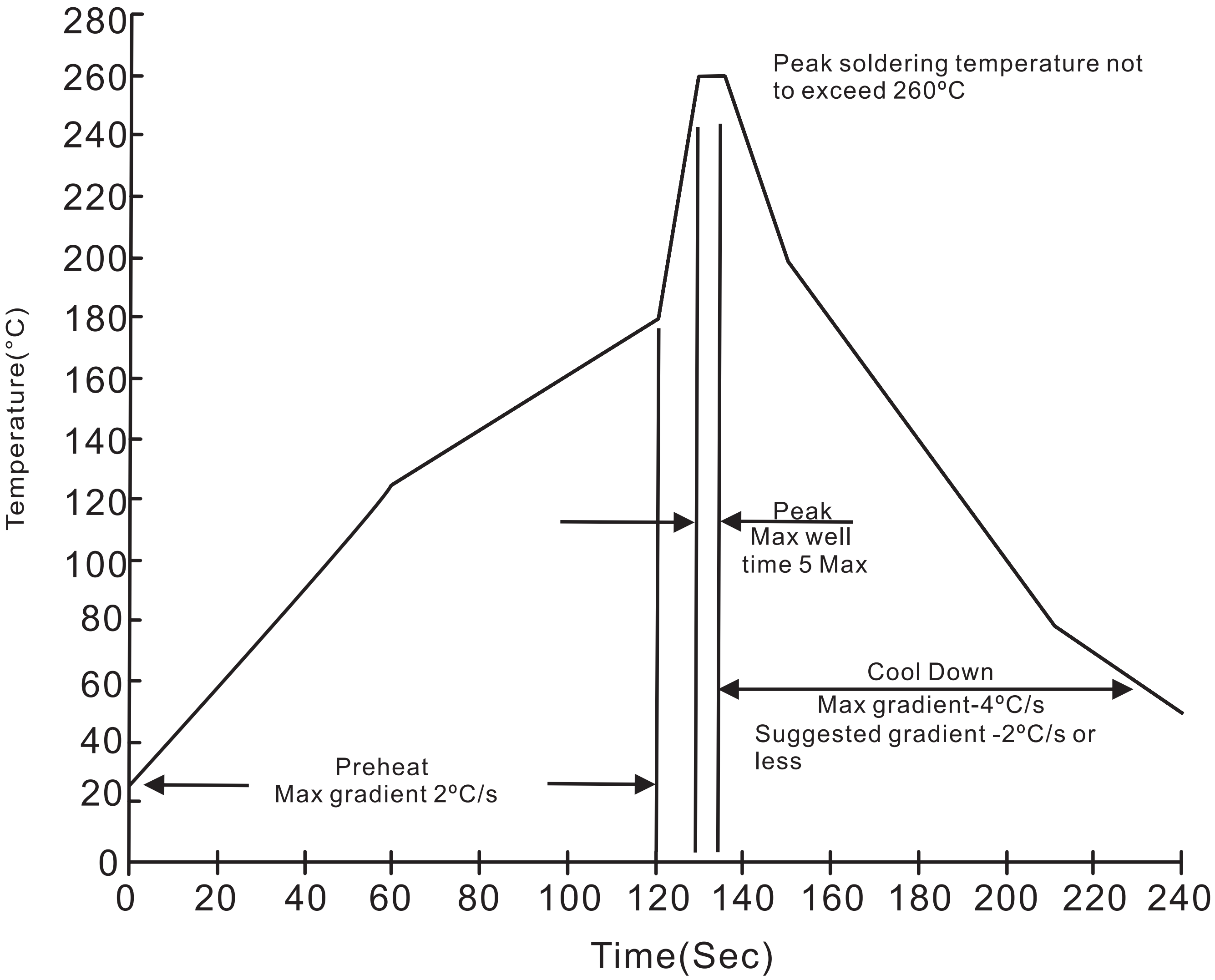
DEVICE CASE TYPE	Q'TY 1 (PCS / BOX)	INNER BOX SIZE (m/m)	CARTON SIZE (m/m)	Q'TY 2 (PCS / CARTON)	APPROX. CROSS WEIGHT(kg)
DO-201AD	1,200	260 * 83 * 160	440 * 270 * 340	12,000	17.0

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



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