

# SF51 THRU SF58

## SUPERFAST RECOVERY RECTIFIERS

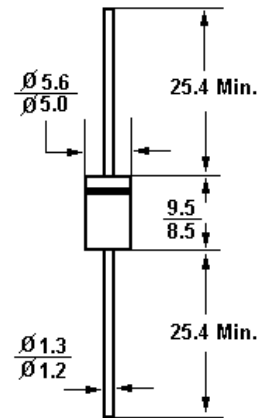
DO-201AD

Reverse Voltage – 50 to 600 Volts

Forward Current – 5.0 Amperes

### Features

- Low forward voltage drop
- Low leakage
- High current capability
- Super fast switching speed
- High forward surge capability
- High reliability.



Dimensions in mm

### Mechanical Data

- **Case:** JEDEC DO-201AD molded plastic body
- **Epoxy :** UL 94V-O rate flame retardant
- **Lead:** Axial leads, solderable per MIL-STD-202, Method 208 guaranteed
- **Polarity:** Color band denotes cathode end
- **Mounting Position:** Any

### Absolute Maximum Ratings and Characteristics

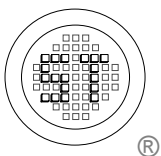
Rating at 25°C ambient temperature unless otherwise specified. Single-phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

	Symbols	SF51	SF52	SF53	SF54	SF55	SF56	SF58	Units
Repetitive Peak Reverse Voltage	$V_{RRM}$	50	100	150	200	300	400	600	V
RMS Voltage	$V_{RMS}$	35	70	105	140	210	280	420	V
DC Blocking Voltage	$V_{DC}$	50	100	150	200	300	400	600	V
Average Forward Rectified Current 0.375"(9.5mm) Lead Length at $T_A = 55^\circ\text{C}$	$I_{(AV)}$	5.0							A
Peak Forward Surge Current , 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method)	$I_{FSM}$	150							A
Instantaneous Forward Voltage @ 5.0A DC and 25°C	$V_F$	0.95			1.25		1.7		V
Reverse Current @ $T_A = 25^\circ\text{C}$	$I_R$	5.0							$\mu\text{A}$
at Rated DC Blocking Voltage @ $T_A = 100^\circ\text{C}$	$I_R$	500							$\mu\text{A}$
Reverse Recovery Time (Note 1)	$T_{rr}$	35					50		ns
Typical Junction Capacitance (Note 2)	$C_J$	45							pF
Typical Thermal Resistance (Note 3)	$R_{\theta JA}$	25							$^\circ\text{C}/\text{W}$
Operating Junction Temperature Range	$T_J$	-55 to +125							$^\circ\text{C}$
Storage Temperature Range	$T_S$	-55 to +150							$^\circ\text{C}$

Note: (1) Reverse recovery test conditions:  $I_F = 0.5\text{A}$ ,  $I_R = 1\text{A}$ ,  $I_{RR} = 0.25\text{A}$ .

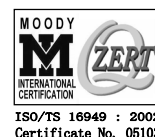
(2) Measured at 1 MHz and applied reverse voltage of 4 Volts D.C

(3) Thermal resistance junction to ambient and form junction to lead at 0.375" (9.5mm) lead length, P. C. B. mounted.



**SEMTECH ELECTRONICS LTD.**

(Subsidiary of Semtech International Holdings Limited, a company listed on the Hong Kong Stock Exchange, Stock Code: 724)



ISO/TS 16949 : 2002  
Certificate No. 05103



ISO 14001  
Certificate No. 7116



ISO 9001 : 2000  
Certificate No. 050-100-000-000

Dated : 25/04/2005 H

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## RATINGS AND CHARACTERISTIC CURVES

FIG. 1 - TEST CIRCUIT DIAGRAM AND REVERSE RECOVERY TIME CHARACTERISTIC

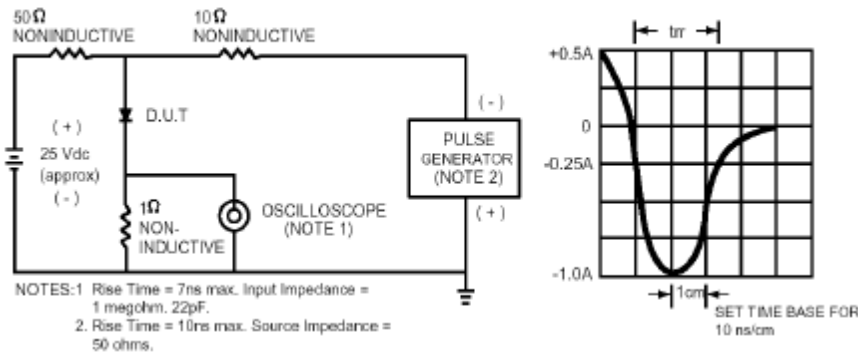


FIG. 2 - TYPICAL FORWARD CURRENT DERATING CURVE

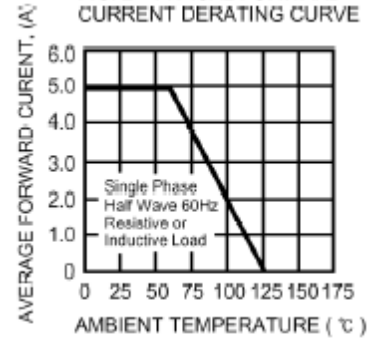


FIG. 3 - TYPICAL REVERSE CHARACTERISTICS

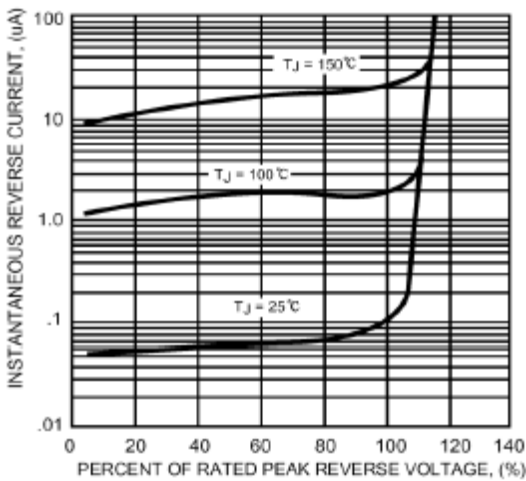


FIG. 4 - TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

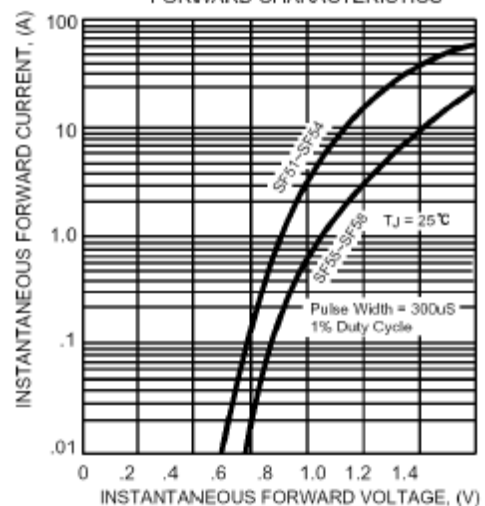


FIG. 5 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

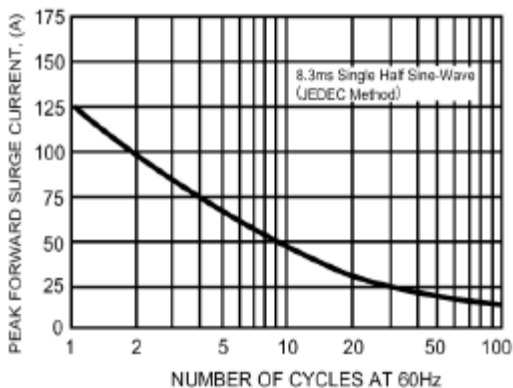
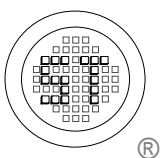
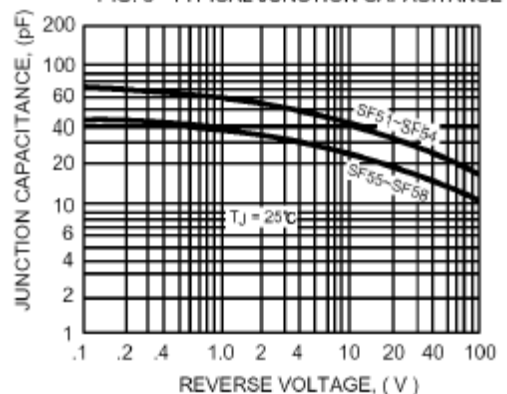


FIG. 6 - TYPICAL JUNCTION CAPACITANCE



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