SEMTECH

MINISTUD HIGH CURRENT ISOLATED RECTIFIER ASSEMBLY

SET010203
SET010219
SET010212
SET010204
SET010211

December 22, 1997

TEL:805-498-2111 FAX:805-498-3804 WEB:http://www.semtech.com

HIGH CURRENT, HIGH DENSITY, ISOLATED, SILICON POWER RECTIFIER STUD

- Low thermal impedance
- Small size and low weight
- High current applications
- Isolated for direct heatsink mounting
- High surge ratings

QUICK REFERENCE DATA

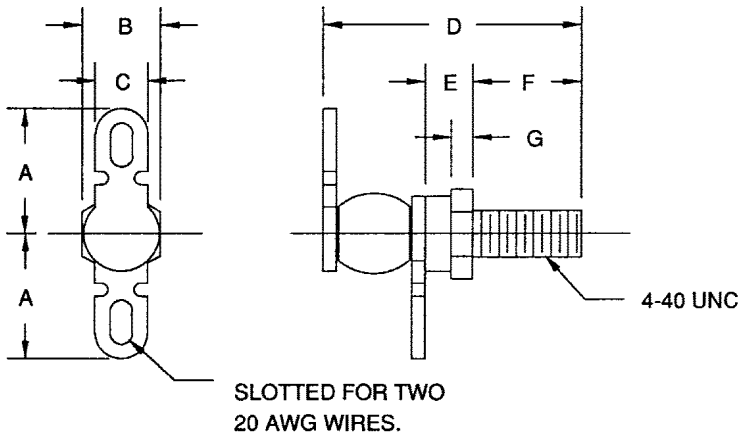
- V_R = 150V - 1000V
- I_F = 15A
- t_{rr} = 30nS - 2µS
- $I_{FSM} \geq$ 150A

ABSOLUTE MAXIMUM RATINGS

Device Type	Working Reverse Voltage (V_{RWM})	Average Rectified Current ($I_{F(AV)}$) @ T_{mb}			1 Cycle Surge I_{FSM} t_P = 8.3mS		Repetitive Surge (I_{FRM})	Operating & Storage Temperature Range	
		@ 55°C	100°C	125°C	@ 25 °C	@ 100°C	@ 25 °C	(T_{OP})	(T_{STG})
	Volts	Amps	Amps	Amps	Amps	Amps	Amps	°C	
SET010203	1000	15	11	8	150	100	25	-55 to +175	
SET010219	1000	10	8	6	150	80	15	-55 to +175	
SET010212	600	15	11	8	150	100	25	-55 to +175	
SET010204	400	15	11	8	150	80	25	-55 to +175	
SET010211	150	15	10	7	175	175	24	-55 to +150	

$R_{\theta JMB}$ = 3°C/W for all varieties, other configurations available see next page for details

MECHANICAL



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DIMENSIONS					
DIM N	MM		INCHES		NOTE
	MIN	MAX	MIN	MAX	
A	5.8	7.4	.23	.29	-
B	4.5	4.8	.18	.19	-
C	3.0	3.3	.12	.13	-
D	14.2	16.5	.56	.65	-
E	2.7	3.3	.11	.13	-
F	6.0	6.6	.24	.26	-
G	1.2	1.5	.05	.06	-

652 MITCHELL ROAD NEWBURY PARK CA 91320

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ELECTRICAL CHARACTERISTICS

Device Type	Maximum Leakage Current @ V_{RWM}		Maximum Forward Voltage @ 9.0 A	Maximum Reverse Recovery Time
	T_j = 25 °C	T_j = 100 °C		
	µA	µA	Volts	nS
SET010203	1.0	20	1.2	2000
SET010219	1.0	25	2.2	150
SET010212	1.0	20	1.2	2000
SET010204	1.0	20	1.5	150
SET010211	10.0	500	1.1	30

OTHER CONFIGURATIONS

The Part Numbers Shown in this data Sheet are Isolated with the cathode at the stud end of the device. Part numbers for other configurations are shown below:

Isolated Cathode to Stud	Isolated Anode to Stud	Non-Isolated Cathode to Stud	Non-Isolated Anode to Stud
SET010203	SET010403	SET010103	SET010303
SET010219	SET010419	SET010119	SET010319
SET010212	SET010412	SET010112	SET010312
SET010204	SET010404	SET010104	SET010304
SET010211	SET010411	SET010111	SET010311

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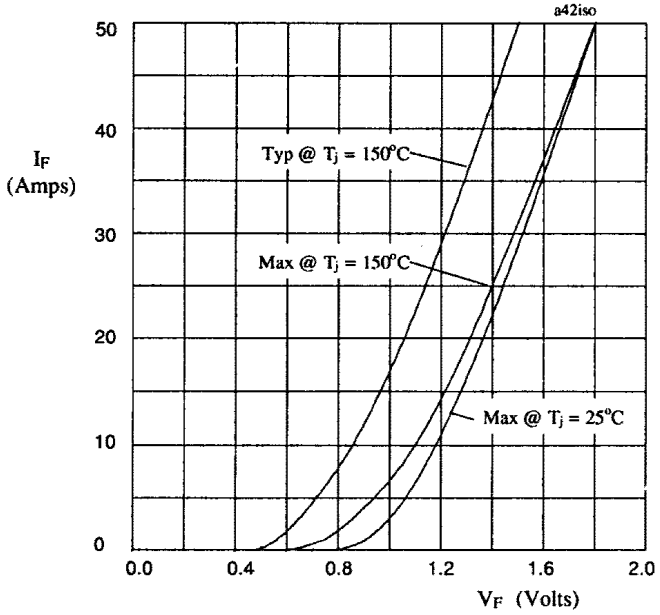

Figure 1. Forward voltage drop as a function of forward current for SET01**03 & SET01**12.

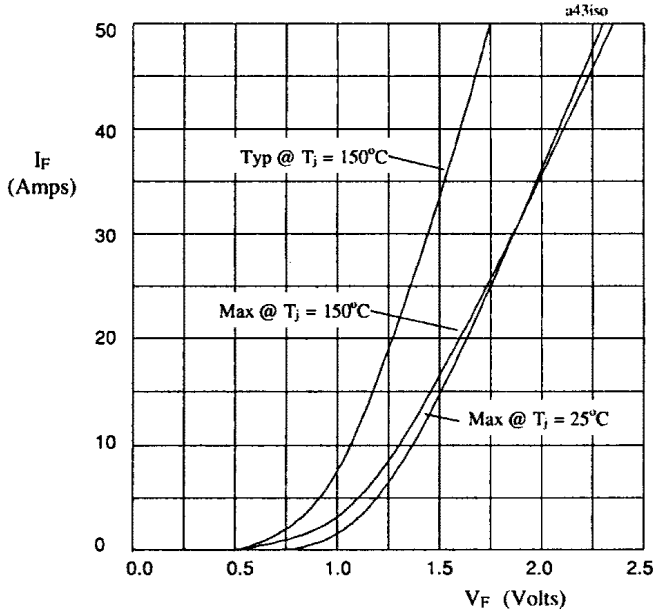

Figure 2. Forward voltage drop as a function of forward current for SET01**04.

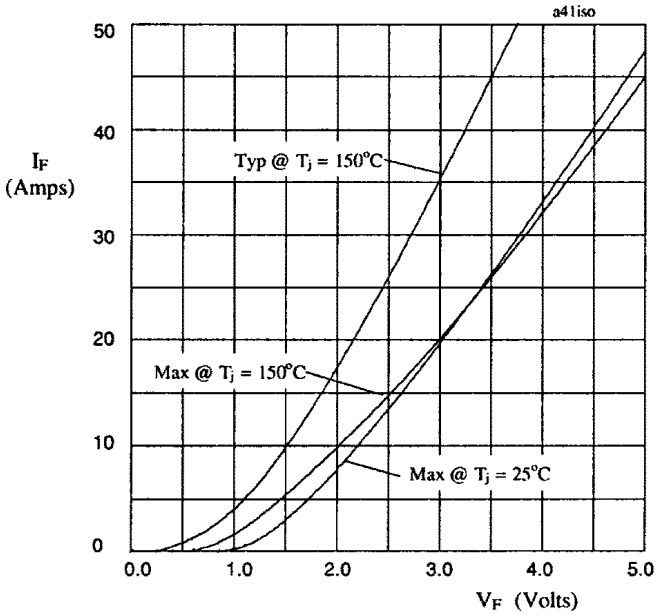

Figure 3. Forward voltage drop as a function of forward current for SET01**19.

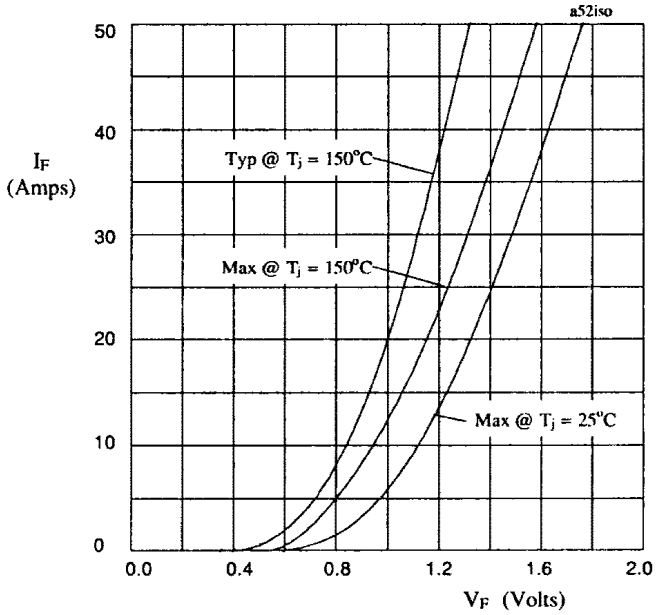

Figure 4. Forward voltage drop as a function of forward current for SET01**11.

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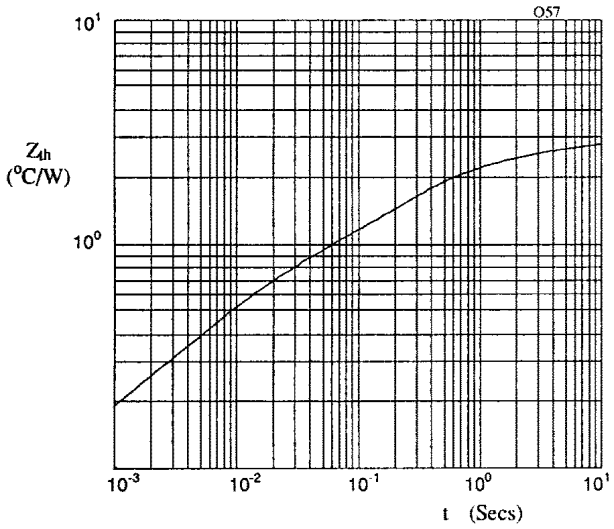

Figure 5. Typical transient thermal impedance characteristic.

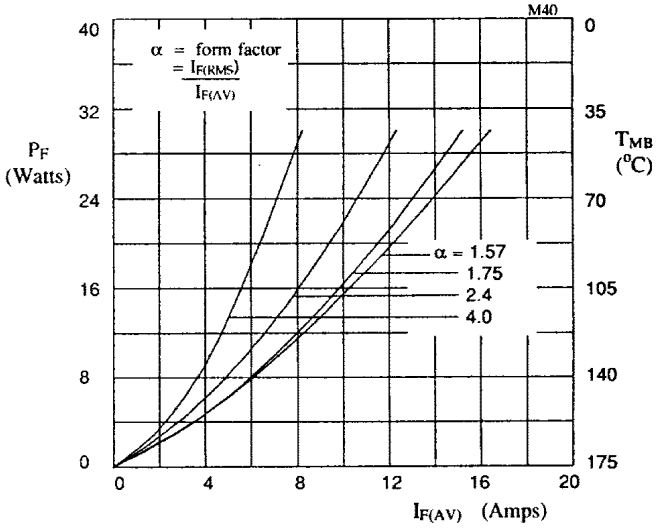

Figure 6. Forward power dissipation and maximum allowable mounting base temperature as a function of forward current for sinusoidal operation, for SET01**03 and SET01**12.

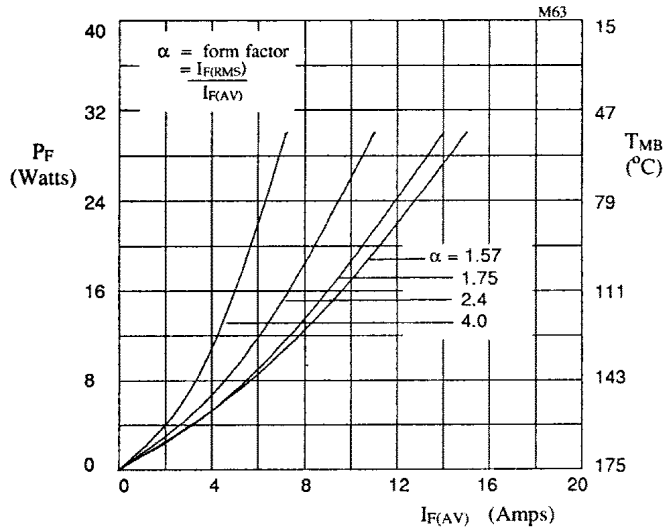

Figure 7. Forward power dissipation and maximum allowable mounting base temperature as a function of forward current for sinusoidal operation, for SET01**04.

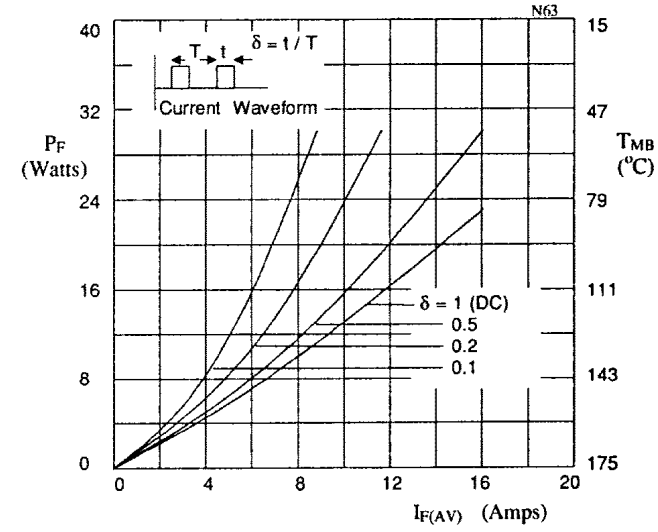

Figure 8. Forward power dissipation and maximum allowable mounting base temperature as a function of forward current for square wave operation, for SET01**04

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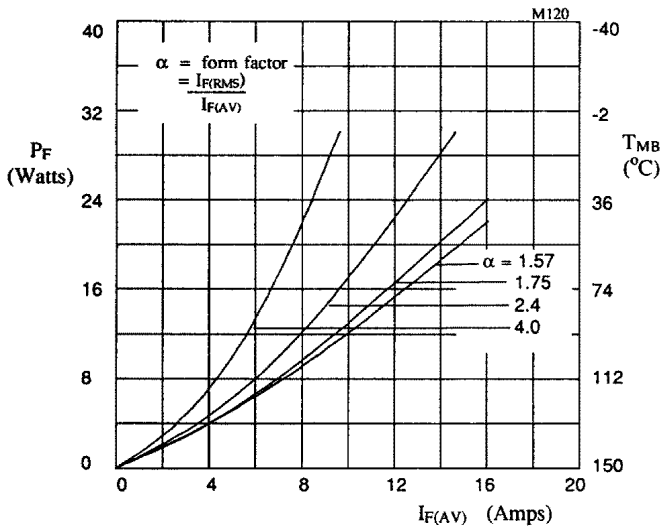

Figure 9. Forward power dissipation and maximum allowable mounting base temperature as a function of forward current for sinusoidal operation, for SET01**11.

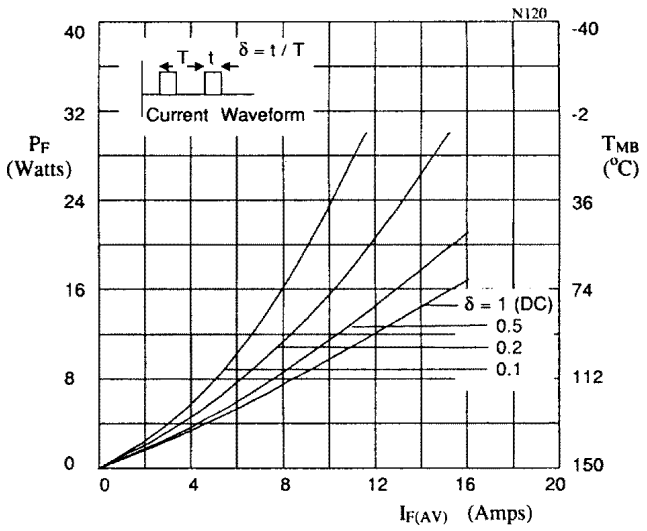

Figure 10. Forward power dissipation and maximum allowable mounting base temperature as a function of forward current for square wave operation, for SET01**11.