SEMTECH

HIGH CURRENT, 1-PHASE CENTER TAPS AND DOUBLER

SET0303**
SET0319**
SET0312**
SET0304**
SET0311**

January 9, 1998

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

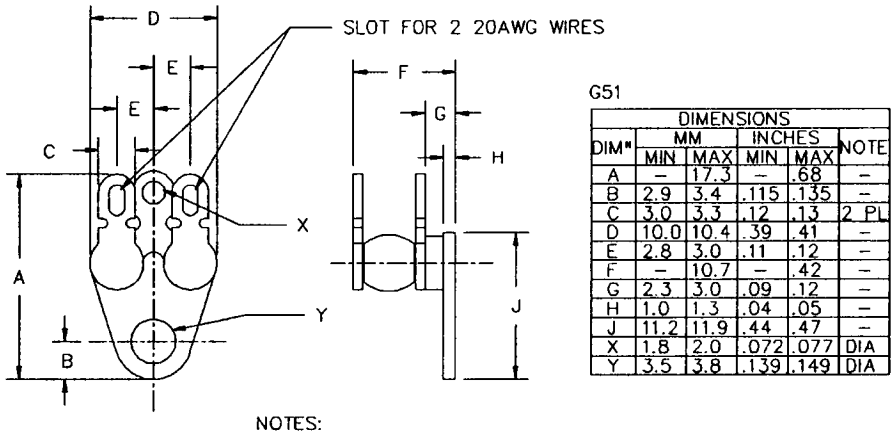
ABSOLUTE MAXIMUM RATINGS

Device Type	Working Reverse Voltage	Average Rectified Current $I_{F(AV)}$ @ T_{MB} see note 1			1 Cycle Surge I_{FSM} @ t_P = 8.3mS		Operating & Storage Temperature Range
		@ 55°C	100°C	125°C	@ 25 °C	@ 100°C	(T_{OP}) (T_{STG})
	Volts	Amps	Amps	Amps	Amps	Amps	°C
SET03**03	1000	30	22	16	150	100	-55 to +175
SET03**19	1000	20	16	12	150	80	-55 to +175
SET03**12	600	30	22	16	150	100	-55 to +175
SET03**04	400	30	22	16	150	80	-55 to +175
SET03**11	150	30	20	14	175	175	-55 to +150

1/ Average Rectified Current = 0.5x$I_{F(AV)}$ for Doubler

$R_{\theta JMB}$ = 1.5°C/W for all varieties, see next page for circuit configurations.

MECHANICAL



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DIM"	DIMENSIONS MM MIN	MM MAX	INCHES MIN	INCHES MAX	NOTE
A	–	17.3	–	.68	–
B	2.9	3.4	.115	.135	–
C	3.0	3.3	.12	.13	2 PL
D	10.0	10.4	.39	.41	–
E	2.8	3.0	.11	.12	–
F	–	10.7	–	.42	–
G	2.3	3.0	.09	.12	–
H	1.0	1.3	.04	.05	–
J	11.2	11.9	.44	.47	–
X	1.8	2.0	.072	.077	DIA
Y	3.5	3.8	.139	.149	DIA

NOTES:
CONFIGURATION AND POLARITY SHOWN BY COLORED DOTS
POSITIVE CENTER TAP – RED DOT ON POSITIVE TERMINAL
NEGATIVE CENTER TAP – BLACK DOT ON NEGATIVE TERMINAL
DOUBLER – RED, POSITIVE; BLACK, NEGATIVE; YELLOW, AC.

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ELECTRICAL CHARACTERISTICS (Apply per leg)

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
SET03**03	1.0	20	1.2	2000
SET03**19	1.0	25	2.2	150
SET03**12	1.0	20	1.2	2000
SET03**04	1.0	20	1.5	150
SET03**11	10.0	500	1.1	30

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CIRCUIT CONFIGURATIONS

** = 06 Positive Center Tap
** = 08 Negative Center Tap
** = 10 Doubler

eg. SET030603 = Positive Center Tap
1000V, 2000nS

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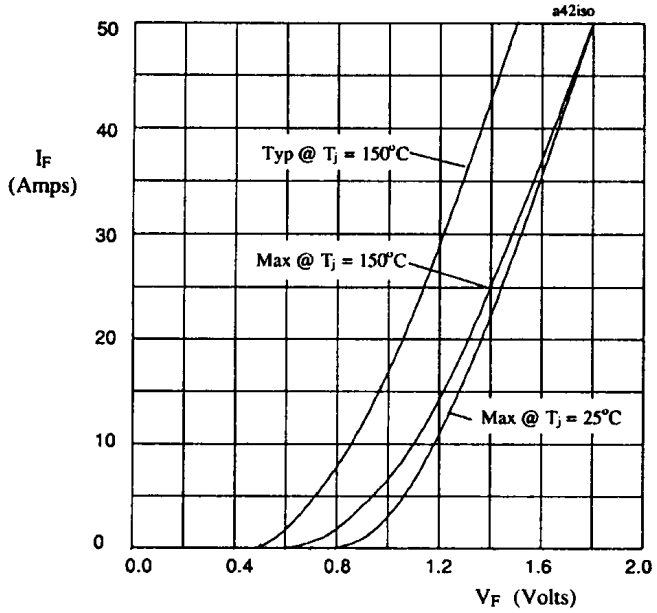

Figure 1. Forward voltage drop as a function of forward current for SET03**03 & SET03**12.

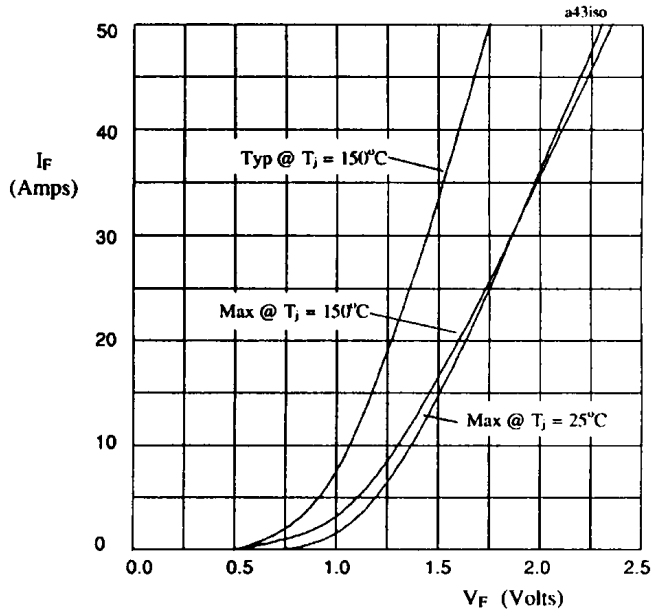

Figure 2. Forward voltage drop as a function of forward current for SET03**04.

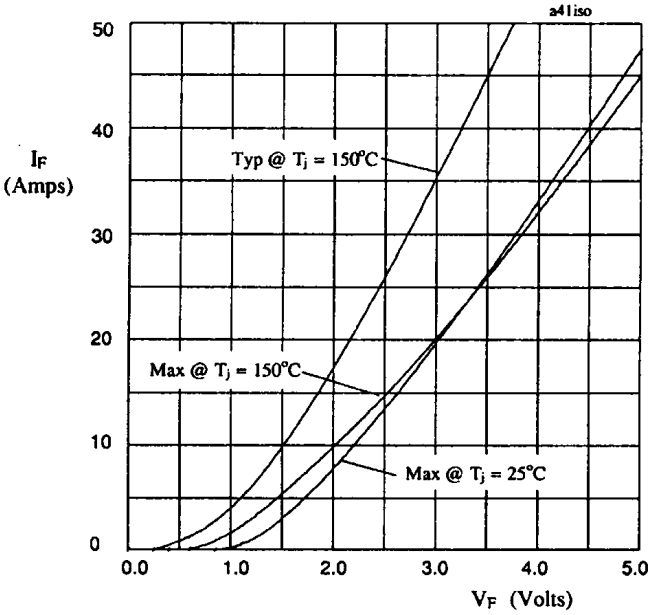

Figure 3. Forward voltage drop as a function of forward current for SET03**19.

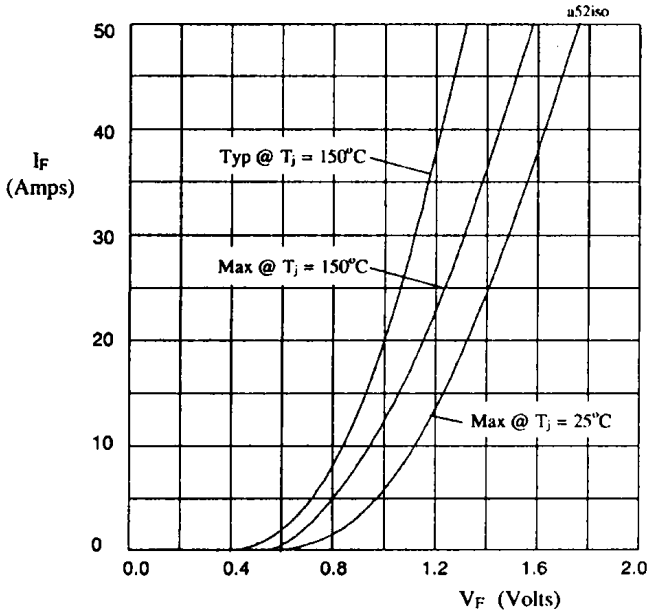

Figure 4. Forward voltage drop as a function of forward current for SET03**11.

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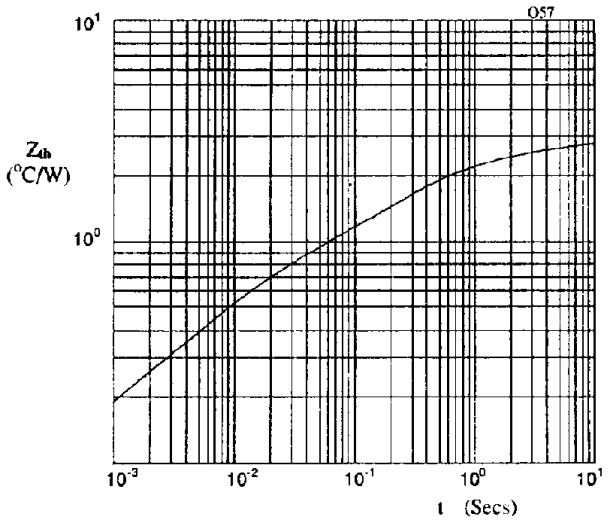

Figure 5. Typical transient thermal impedance characteristic.

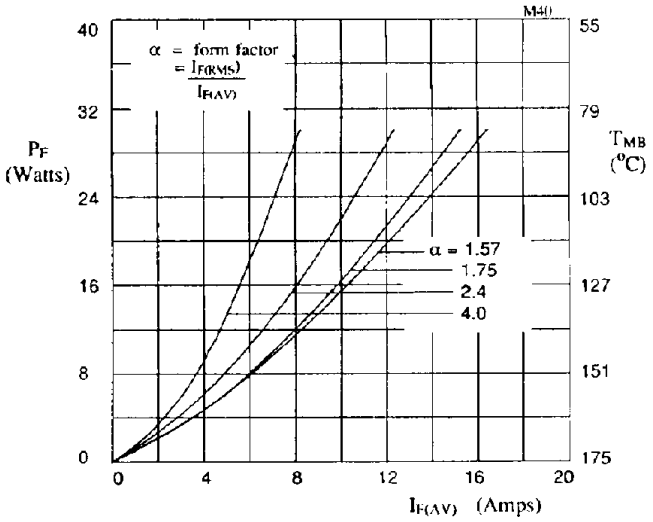

Figure 6. Forward power dissipation and maximum allowable mounting base temperature as a function of forward current for sinusoidal operation, for SET03**03 and SET03**12.

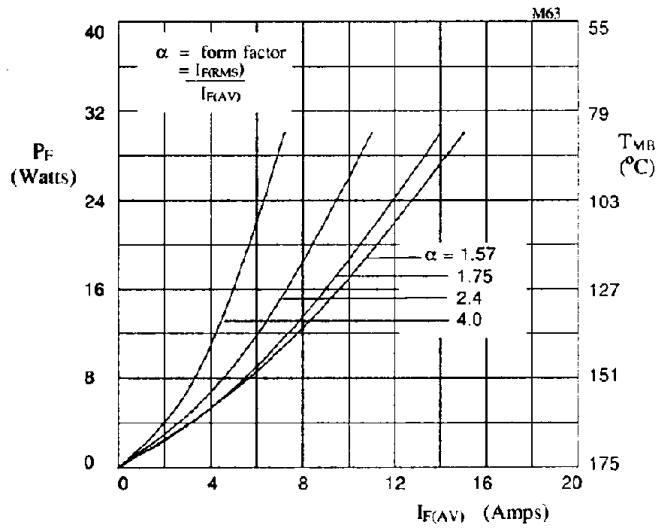

Figure 7. Forward power dissipation and maximum allowable mounting base temperature as a function of forward current for sinusoidal operation, for SET03**04.

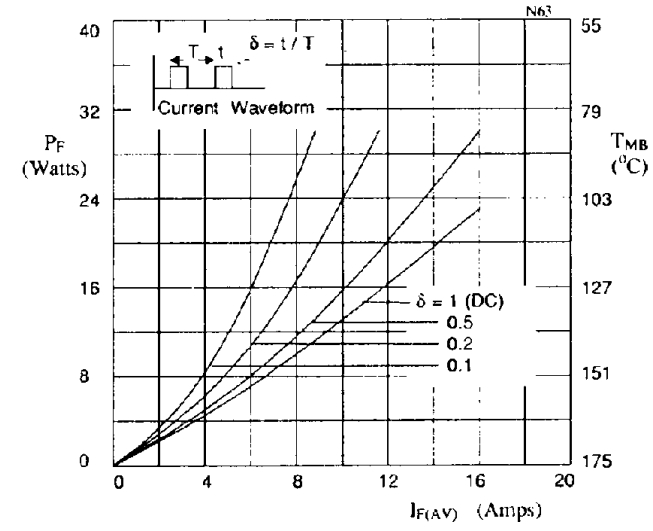

Figure 8. Forward power dissipation and maximum allowable mounting base temperature as a function of forward current for square wave operation, for SET03**04

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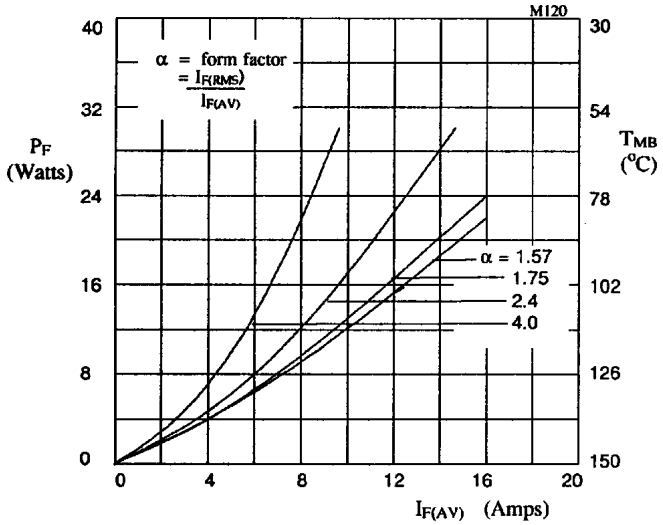

Figure 9. Forward power dissipation and maximum allowable mounting base temperature as a function of forward current for sinusoidal operation, for SET03**11.

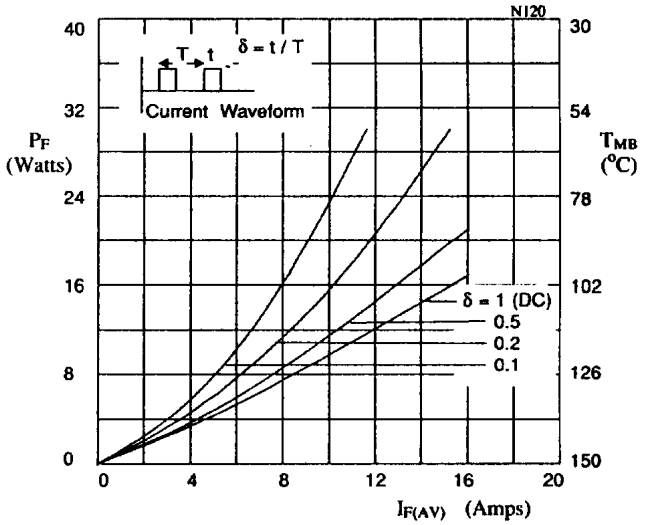

Figure 10. Forward power dissipation and maximum allowable mounting base temperature as a function of forward current for square wave operation, for SET03**11.

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