

January 9, 1998

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

### QUICK REFERENCE DATA

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

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

### 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	(Top) (Tstc)	
		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 =  $0.5 \times I_{F(AV)}$  for Doubler

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

### MECHANICAL

SLOT FOR 2 20AWG WIRES

G51

DIM#	MM		INCHES		NOTE
	MIN	MAX	MIN	MAX	
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
	$T_j = 25\text{ }^\circ\text{C}$	$T_j = 100\text{ }^\circ\text{C}$		
	$\mu\text{A}$	$\mu\text{A}$	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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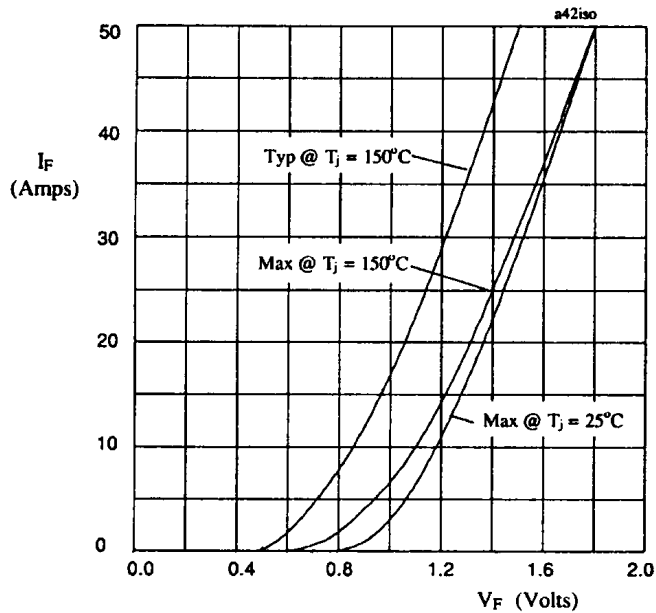


Figure 1. Forward voltage drop as a function of forward current for SET03\*\*03 & SET03\*\*12.

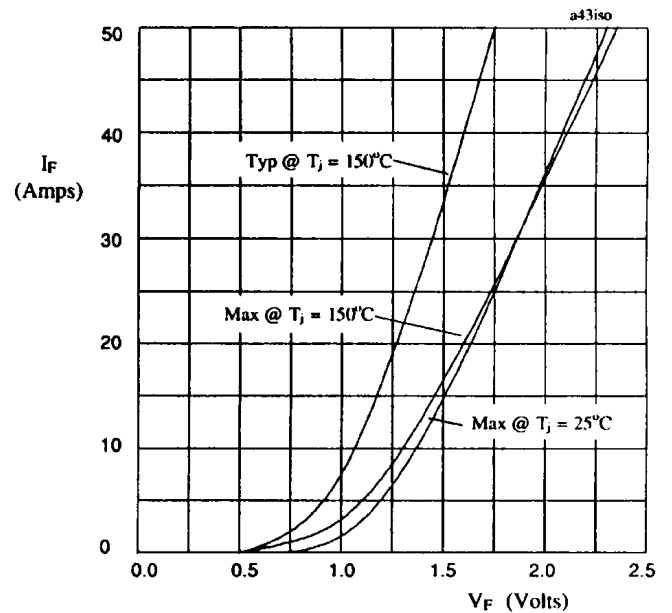


Figure 2. Forward voltage drop as a function of forward current for SET03\*\*04.

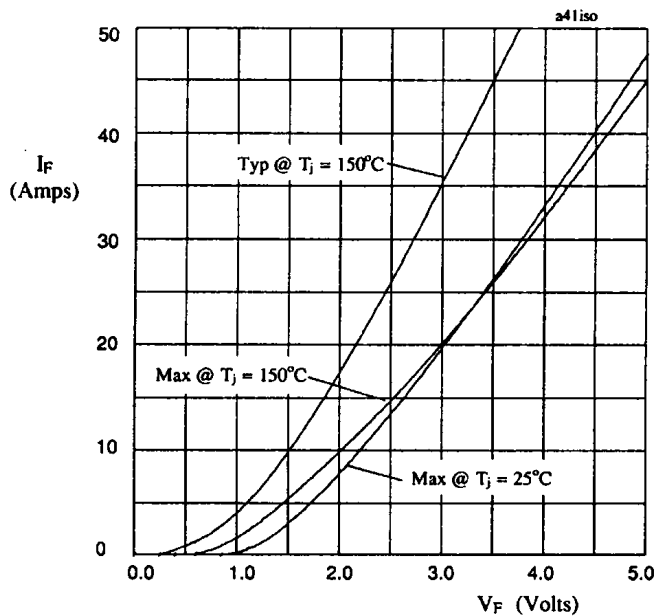


Figure 3. Forward voltage drop as a function of forward current for SET03\*\*19.

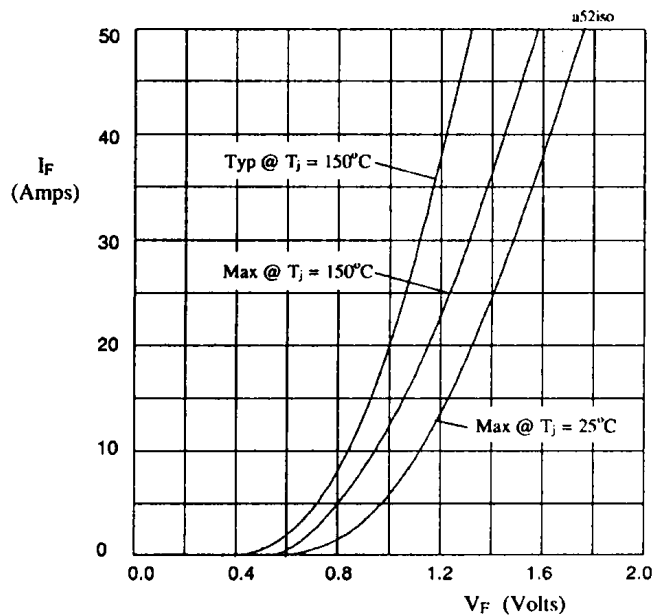


Figure 4. Forward voltage drop as a function of forward current for SET03\*\*11.

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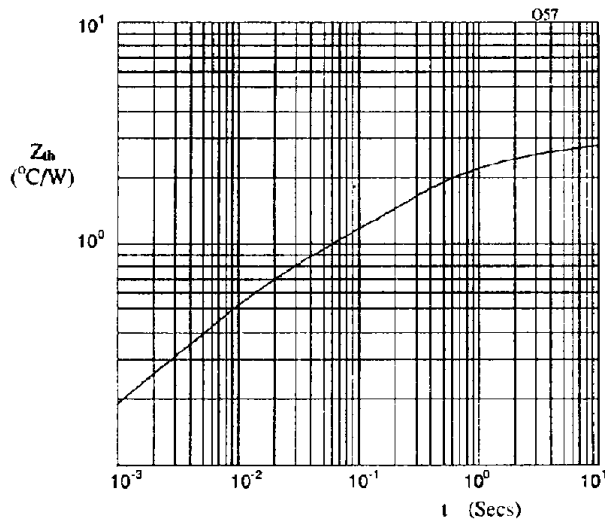


Figure 5. Typical transient thermal impedance characteristic.

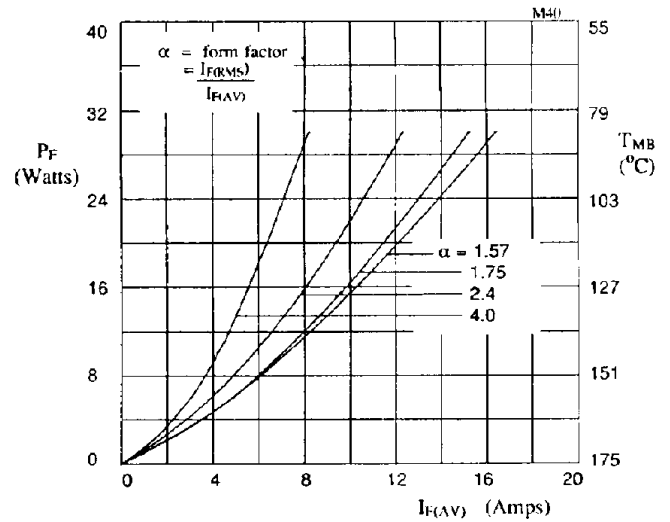


Figure 6. Forward power dissipation and maximum allowable mounting base temperature as a function of forward current for sinusoidal operation, for SET03\*\*03 and SET03\*\*12.

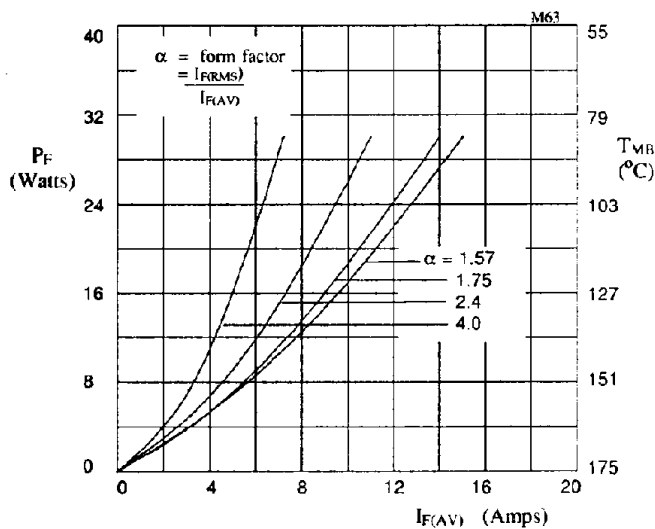


Figure 7. Forward power dissipation and maximum allowable mounting base temperature as a function of forward current for sinusoidal operation, for SET03\*\*04.

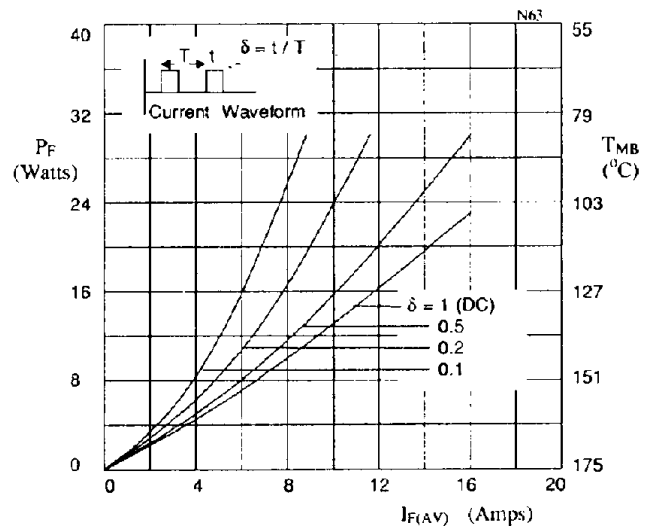


Figure 8. Forward power dissipation and maximum allowable mounting base temperature as a function of forward current for square wave operation, for SET03\*\*04

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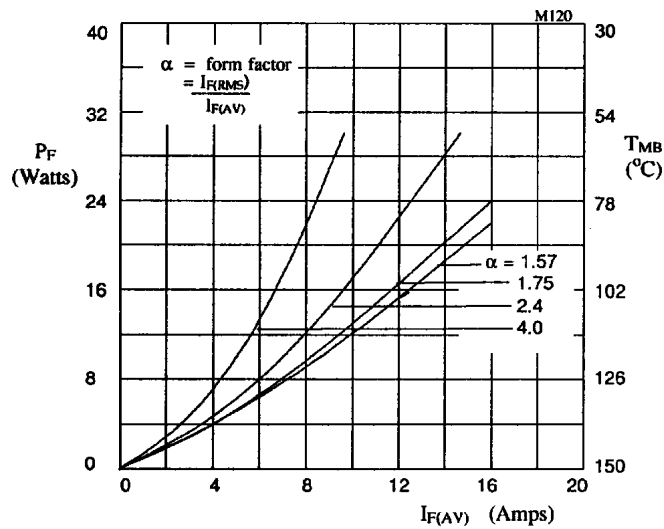


Figure 9. Forward power dissipation and maximum allowable mounting base temperature as a function of forward current for sinusoidal operation, for SET03\*\*11.

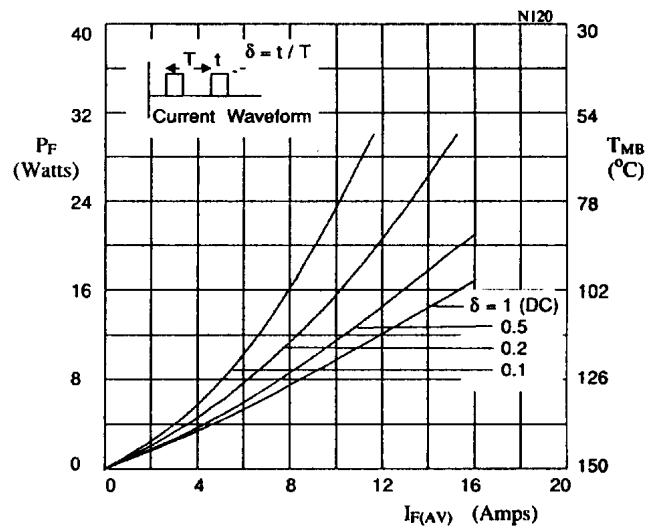


Figure 10. Forward power dissipation and maximum allowable mounting base temperature as a function of forward current for square wave operation, for SET03\*\*11.