

December 22, 1997

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HIGH CURRENT, HIGH DENSITY, STANDARD RECOVERY SILICON POWER RECTIFIER STUD

QUICK REFERENCE DATA

- Low thermal impedance
- Low forward voltage drop
- High current applications
- Low reverse leakage current
- High surge ratings

- $V_R = 50V - 1000V$
- $I_F = 150A$
- $I_R = 12.0\mu A$
- $I_{FSM} = 1800A$

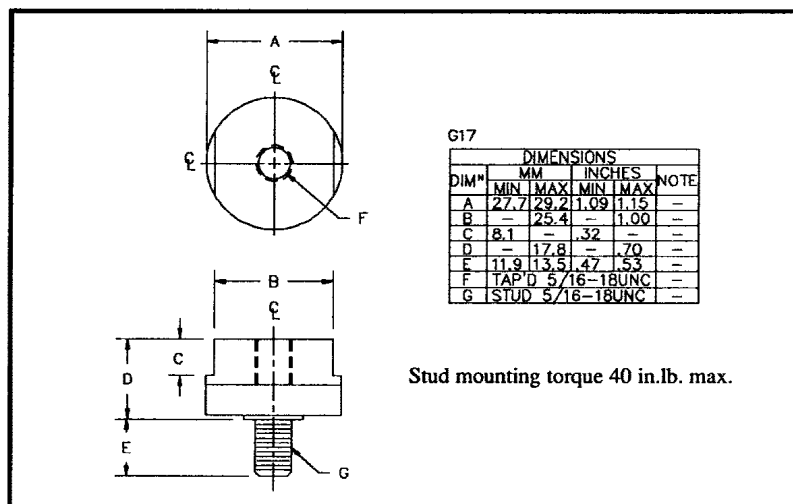
ABSOLUTE MAXIMUM RATINGS

Device Type *	Working Reverse Voltage (V_{RWM})	Average Rectified Current $I_{F(AV)}$					1 Cycle Surge Current I_{FSM} $t_p = 8.3ms$		Repetitive Surge Current I_{FRM}
		insert mounting			stud mounting	stud + insert mounting	@ 25°C	@ 100°C	@ 25°C
		@ 25°C	@ 55°C	@ 100°C	@ 55°C	@ 55°C	Amps	Amps	Amps
	Volts	Amps	Amps	Amps	Amps	Amps	Amps	Amps	
SCSM05	50	↑	↑	↑	↑	↑	↑	↑	
SCSM1	100	↑	↑	↑	↑	↑	↑	↑	
SCSM2	200	↑	↑	↑	↑	↑	↑	↑	
SCSM4	400	150	110	70	95	175	1800	840	250
SCSM6	600	↓	↓	↓	↓	↓	↓	↓	
SCSM8	800	↓	↓	↓	↓	↓	↓	↓	
SCSM0	1000	↓	↓	↓	↓	↓	↓	↓	

Normal polarity is cathode to stud

* add suffix "R" to part number for reverse polarity

MECHANICAL



Maximum thermal impedances

Stud mounted $R_{\theta JC} < 0.67^\circ C/W$

Insert mounted $R_{\theta JC} < 0.5^\circ C/W$

Stud + insert mtd $R_{\theta JC} < 0.28^\circ C/W$

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ELECTRICAL CHARACTERISTICS

Device Type	Maximum Reverse Leakage Current $I_R @ V_{RWM}$		Forward Voltage $V_F @ 100A.$	Reverse Recovery Time ⁽¹⁾
	@ 25 °C	@ 100 °C	Max @ 25°C	max @ 25 °C
	μA	μA	Volts	μS
SCSM05	↑	↑	↑	↑
SCSM1	↑	↑	↑	↑
SCSM2	↑	↑	↑	↑
SCSM4	12.0	400	1.15	2.0
SCSM6	↓	↓	↓	↓
SCSM8	↓	↓	↓	↓
SCSM0	↓	↓	↓	↓

1) Measured on discrete devices prior to assembly.

Operating temperature range -55 °C to +150 °C
Storage temperature range -55 °C to +150 °C

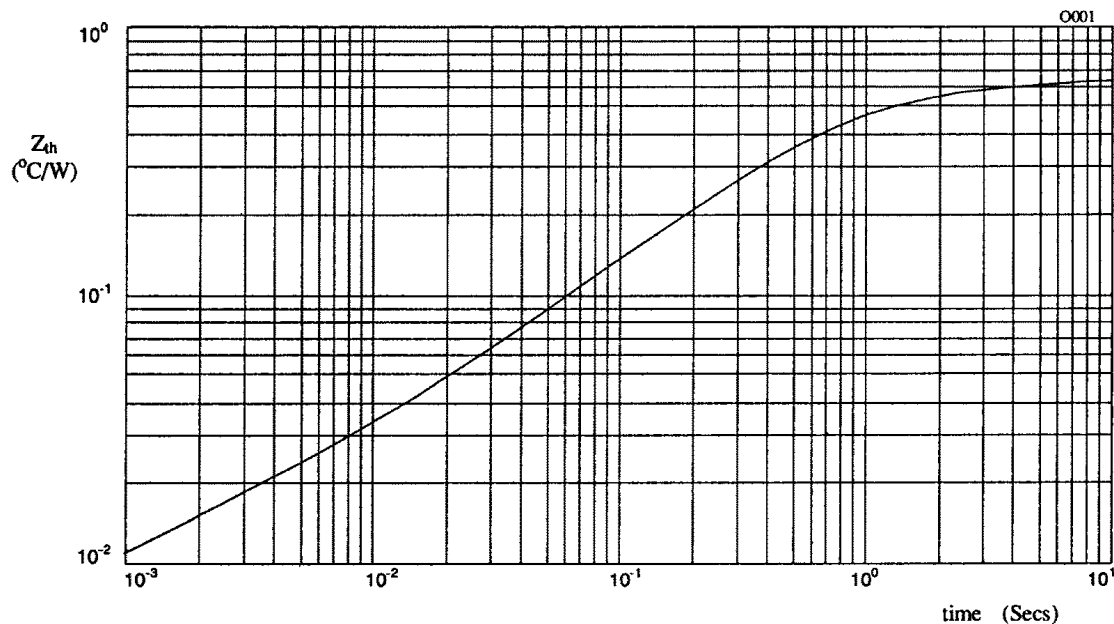


Figure 1. Transient thermal impedance characteristic when stud mounted.

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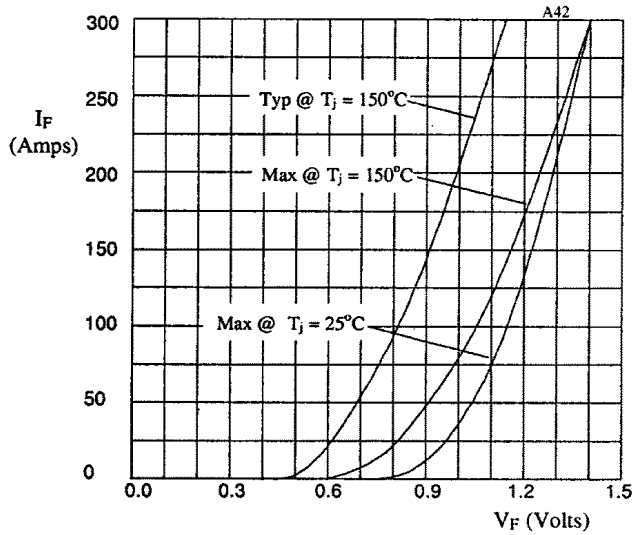


Fig 2. Forward voltage drop as a function of forward current.

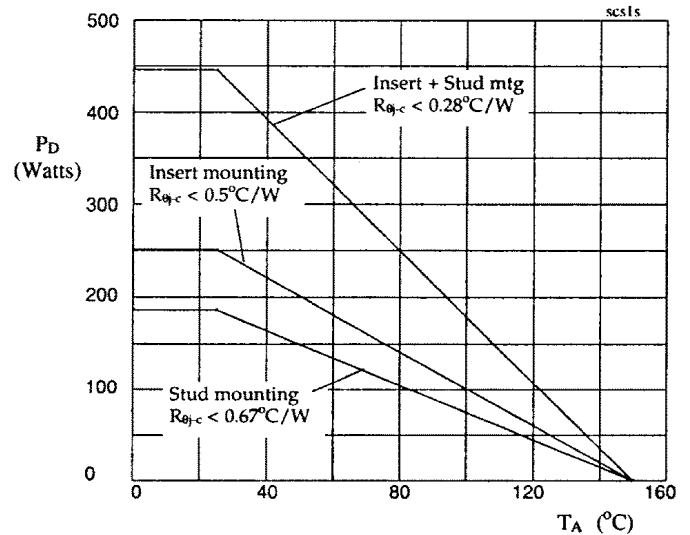


Fig 3. Power dissipation as a function of ambient temperature for different mountings.

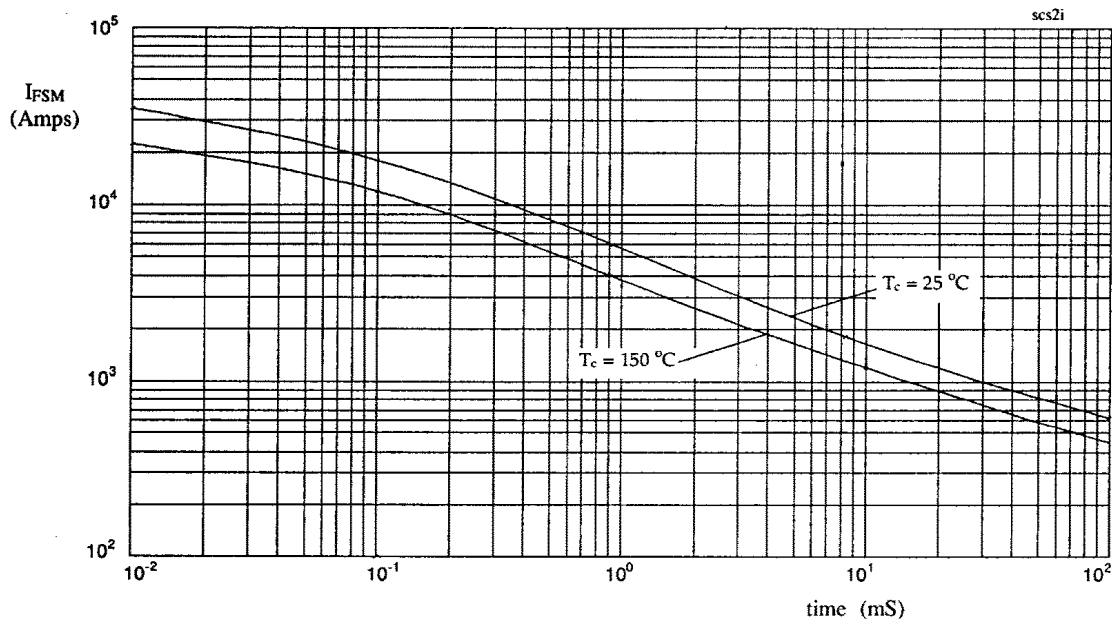


Figure 4. Maximum non-repetitive surge current against pulse width.