

SEMTECH**RECTIFIER, up to 10kV, 300mA,
2.5 μ s****SM40
SM75****SM50
SM100**

January 7, 1998

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

**QUICK REFERENCE
DATA**

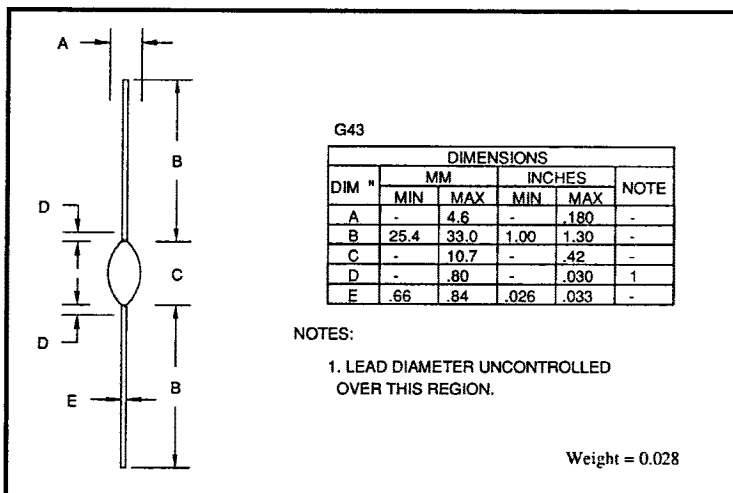
- $V_R = 4\text{kV} - 10\text{kV}$
- $I_F = 300\text{mA}$
- $t_{rr} = 2.5\mu\text{s}$
- $I_R = 1.0\mu\text{A}$

**AXIAL LEADED HERMETICALLY SEALED HIGH
VOLTAGE STANDARD RECOVERY RECTIFIER DIODE**

- Low reverse currents
- Hermetically sealed with Metoxilite fused metal oxide
- Good thermal shock resistance
- Monolithic cavity free construction
- Subminiature size

ABSOLUTE MAXIMUM RATINGS (@ 25°C unless otherwise specified)

	Symbol	SM40	SM50	SM75	SM100	Unit
Working reverse voltage	V_{RWM}	4000	5000	7500	10000	V
Repetitive reverse voltage	V_{RRM}	4000	5000	7500	10000	V
Average forward current (@ 55°C in oil)	$I_{F(AV)}$	← 300 →				mA
Repetitive surge current (@ 55°C in oil, lead length 0.375")	I_{FRM}	← 1.0 →				A
Non-repetitive surge current ($t_p = 8.3\text{mS}$, @ V_R & T_{jmax})	I_{FSM}	← 25 →				A
Storage temperature range	T_{STG}	← -65 to +175 →				°C
Operating temperature range	T_{OP}	← -65 to +175 →				°C

MECHANICAL

SEMTECH**RECTIFIER, up to 10kV, 300mA,
2.5 μ s****SM40
SM75****SM50
SM100**

January 7, 1998

CHARACTERISTICS (@ 25°C unless otherwise specified)

	Symbol	SM40	SM50	SM75	SM100	Unit
Average forward current (sine wave) - max. pcb mounted; $T_A = 55^\circ\text{C}$ - max. in unstirred oil	$I_{F(AV)}$ $I_{F(AV)}$	←	130	→	←	mA mA
I^2t for fusing ($t = 8.3\text{mS}$) max.	I^2t	←	2.6	→	←	A^2S
Forward voltage drop max. @ $I_F = 100\text{mA}$, $T_j = 25^\circ\text{C}$	V_F	←	10.0	→	←	V
Reverse current max. @ V_{RWM} , $T_j = 25^\circ\text{C}$ @ V_{RWM} , $T_j = 100^\circ\text{C}$	I_R I_R	←	1.0	→	←	μA μA
Reverse recovery time max. 50mA I_F to 100mA I_R . Recover to 25mA I_{RR} .	t_{rr}	←	2.5	→	←	μS
Junction capacitance typ. @ $V_R = 5\text{V}$, $f = 1\text{MHz}$	C_j	←	3.2	→	←	pF
Thermal resistance - junction to oil Unstirred @ 55°C Stirred @ 55°C	$R_{\theta JO}$ $R_{\theta JO}$	←	28	→	←	$^\circ\text{C/W}$ $^\circ\text{C/W}$
Thermal resistance - junction to amb. on 0.06" thick pcb. 1oz copper.	$R_{\theta JA}$	←	91	→	←	$^\circ\text{C/W}$

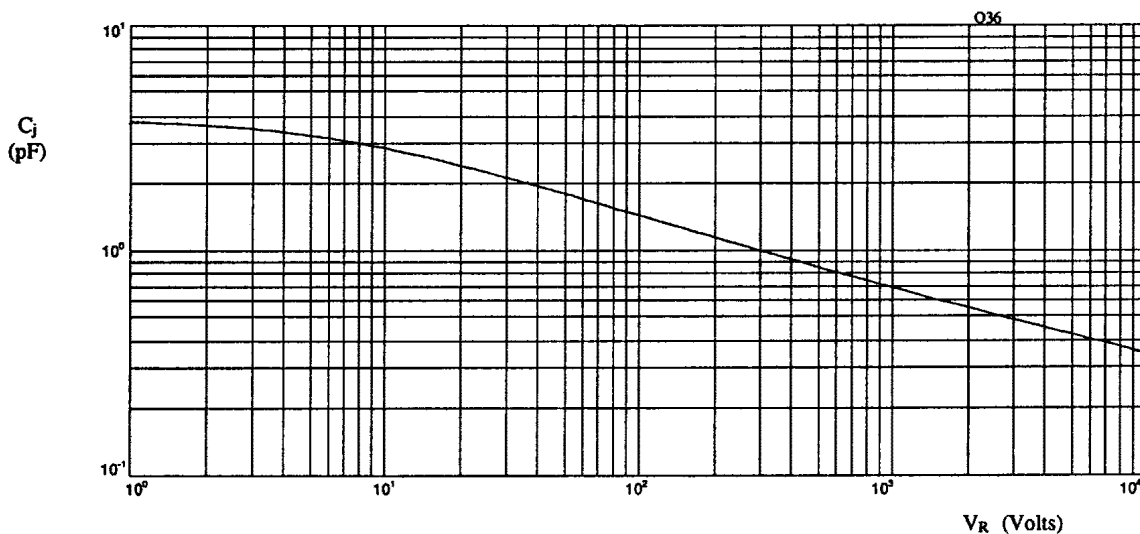


Fig 1. Typical junction capacitance as a function of reverse voltage.

January 7, 1998

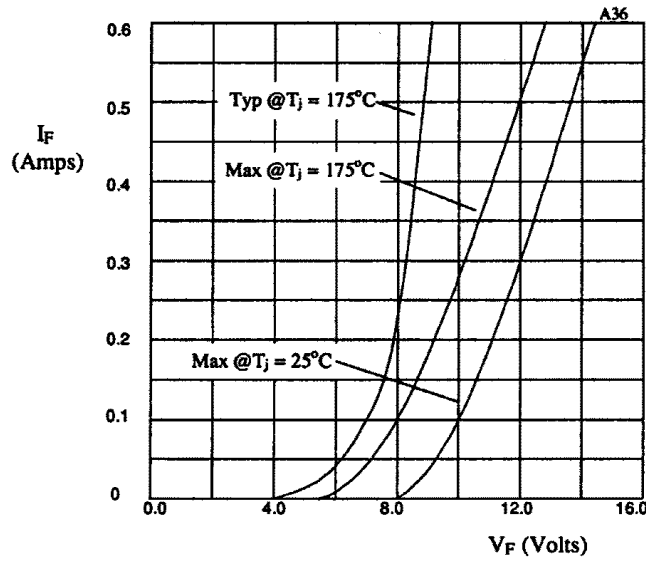


Fig 2. Forward voltage drop as a function of forward current.

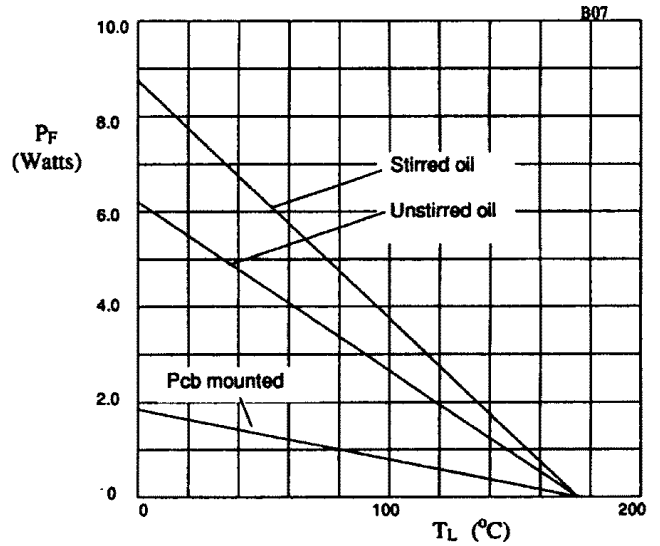


Fig 3. Power derating in air and oil.

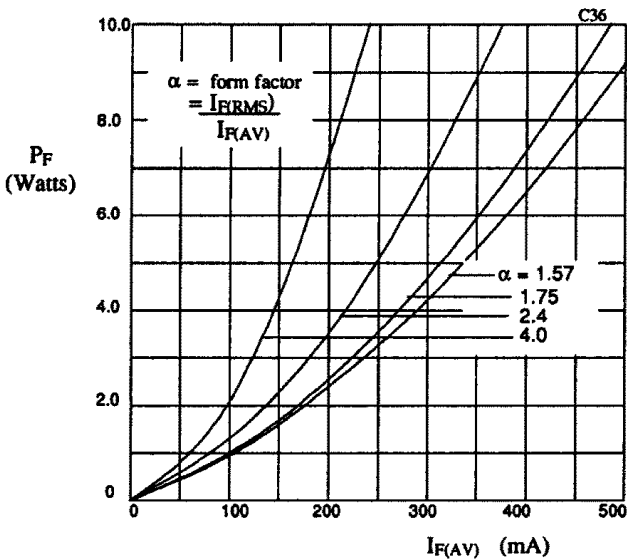


Fig 4. Forward power dissipation as a function of forward current, for sinusoidal operation.

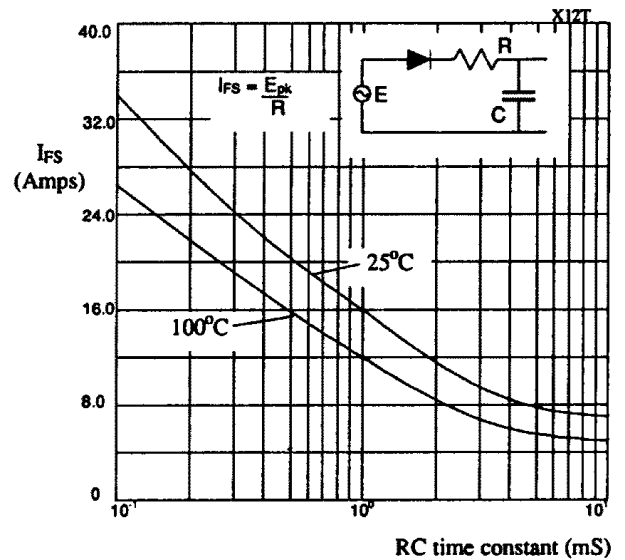


Fig 5. Maximum ratings for capacitive loads.