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

AXIAL LEADED HERMETICALLY SEALED SUPERFAST RECTIFIER DIODE

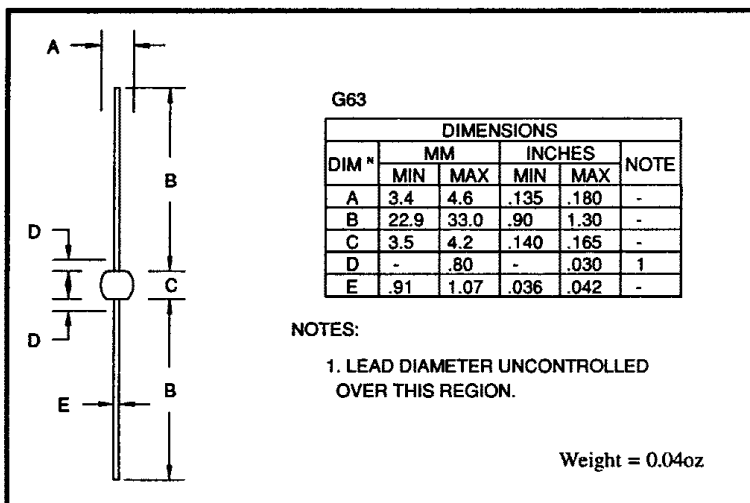
QUICK REFERENCE DATA

- Very low reverse recovery time
 - Hermetically sealed with Metoxilite fused metal oxide
 - Low switching losses
 - Soft, non-snap off, recovery characteristics
- $V_R = 300 - 600V$
 - $I_F = 3.4A$
 - $t_{rr} = 50ns$
 - $I_R = 10\mu A$

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

	Symbol	3FF30	3FF40	3FF50	3FF60	Unit
Working reverse voltage	V_{RWM}	300	400	500	600	V
Repetitive reverse voltage	V_{RRM}	300	400	500	600	V
Average forward current (@ 55°C, lead length = 0.375")	$I_{F(AV)}$	← 3.4 →				A
Repetitive surge current (@ 55°C in free air, lead length 0.375")	I_{FRM}	← 15.0 →				A
Non-repetitive surge current ($t_p = 8.3ms$, @ V_R & T_{jmax})	I_{FSM}	← 70 →				A
Storage temperature range	T_{STG}	← -65 to +150 →				°C
Operating temperature range	T_{OP}	← -65 to +150 →				°C

MECHANICAL



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ELECTRICAL CHARACTERISTICS (@ 25°C unless otherwise specified)

	Symbol	3FF30	3FF40	3FF50	3FF60	Unit
Average forward current max. (pcb mounted; T _A = 55°C) for sine wave	I _{F(AV)}	←	1.0	→		A
	I _{F(AV)}	←	1.1	→		A
Average forward current max. (T _L = 55°C; L = 3/8") for sine wave	I _{F(AV)}	←	3.3	→		A
	I _{F(AV)}	←	3.4	→		A
I ² t for fusing (t = 8.3mS) max.	I ² t	←	41	→		A ² S
Forward voltage drop max. @ I _F = 3.0A, T _j = 25°C	V _F	←	1.40	→		V
Reverse current max. @ V _{RWM} , T _j = 25°C	I _R	←	10	→		μA
	I _R	←	500	→		μA
Reverse recovery time max. 0.5A I _F to 1.0A I _R . Recovers to 0.25A I _{RR} .	t _{rr}	←	50	→		nS
Junction capacitance typ. @ V _R = 5V, f = 1MHz	C _j	←	125	→		ρF

THERMAL CHARACTERISTICS

	Symbol	3FF30	3FF40	3FF50	3FF60	Unit
Thermal resistance - junction to lead Lead length = 0.375"	R _{θJL}	←	20	→		°C/W
	R _{θJL}	←	5	→		°C/W
Thermal resistance - junction to amb. on 0.06" thick pcb. 1 oz. copper.	R _{θJA}	←	75	→		°C/W

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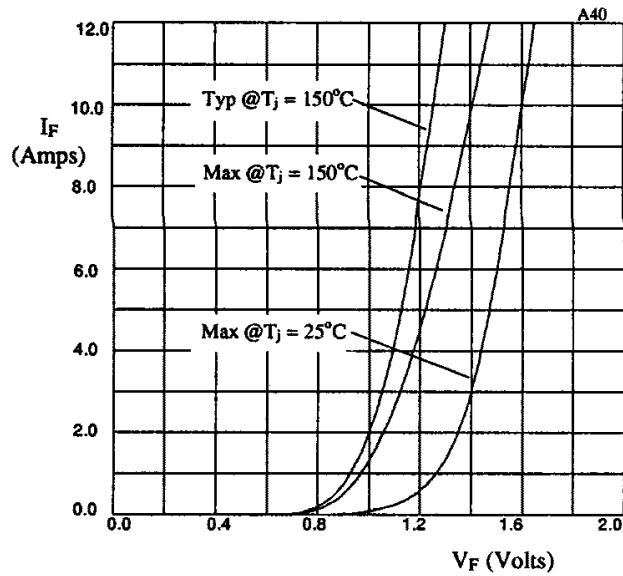


Fig 1. Forward voltage drops as a function of forward current

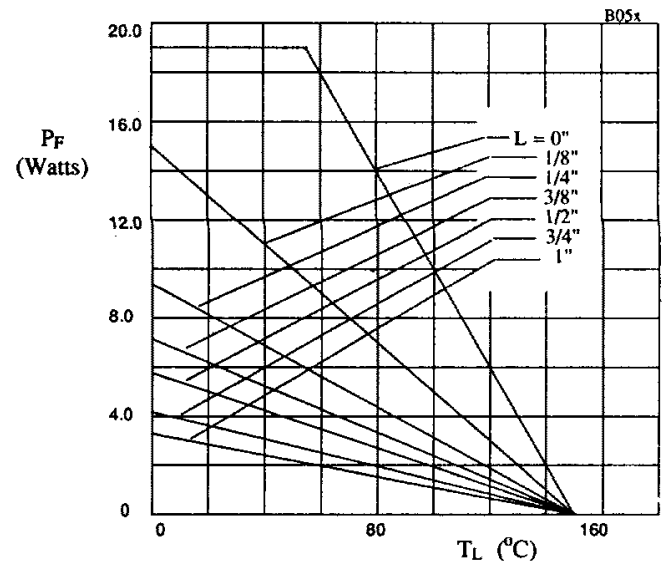


Fig 2. Maximum power versus lead temperature

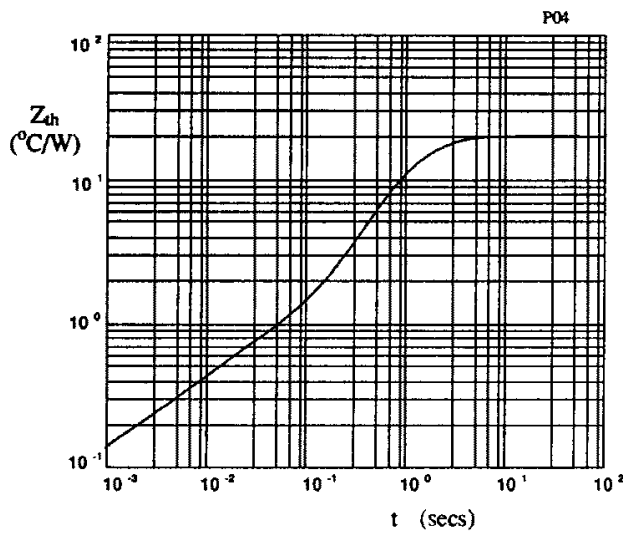


Fig 3. Transient thermal impedance characteristic.

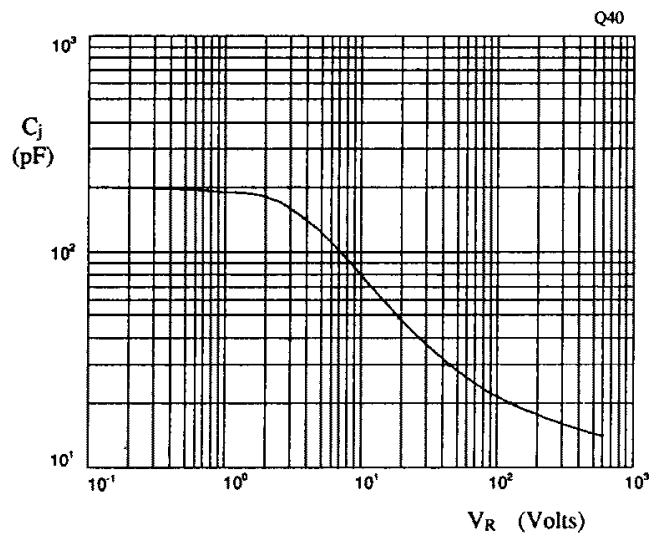


Fig 4. Typical junction capacitance as a function of reverse voltage.

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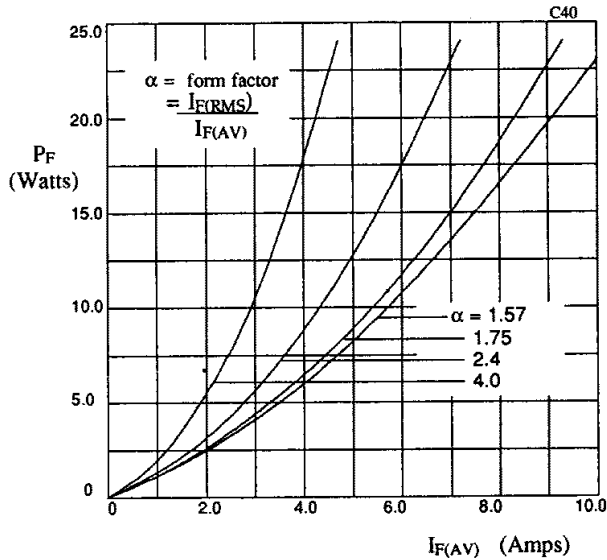


Fig 5. Forward power dissipation as a function of forward current, for sinusoidal operation.

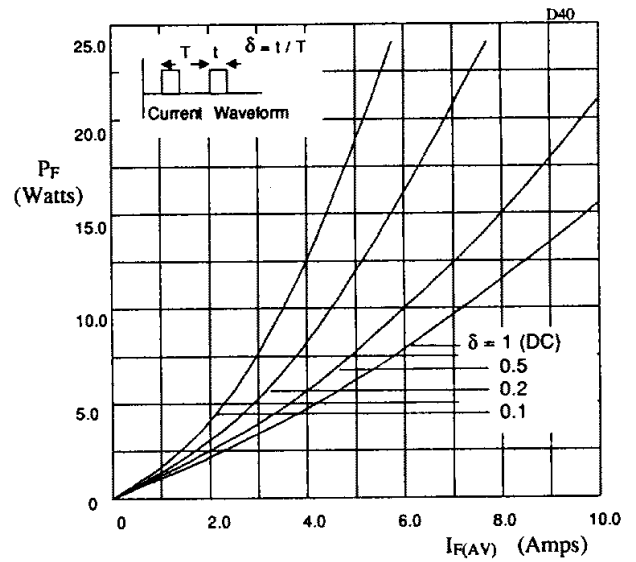


Fig 6. Forward power dissipation as a function of forward current, for square wave operation.

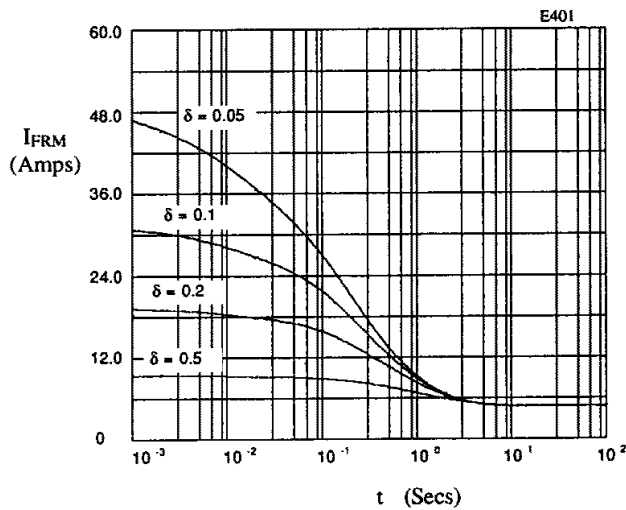


Fig 7. Typical repetitive forward current as a function of pulse width at 55°C; $R_{\theta JL} = 20\text{ }^{\circ}\text{C/W}$; V_{RWM} during $1 - \delta$.

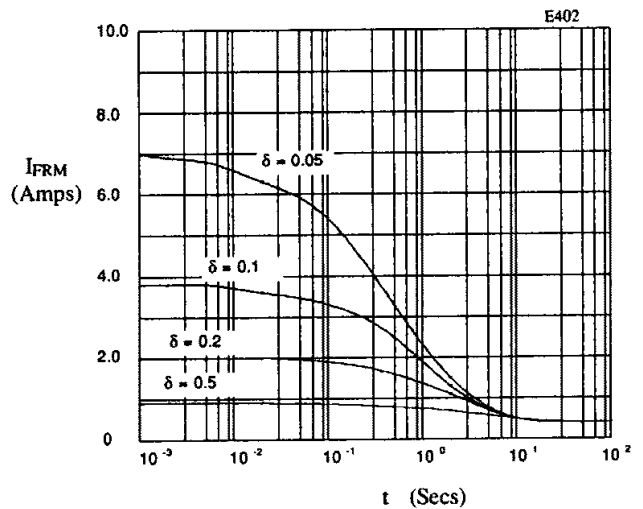


Fig 8. Typical repetitive forward current as a function of pulse width at 100°C; $R_{\theta JL} = 80\text{ }^{\circ}\text{C/W}$; V_{RWM} during $1 - \delta$.