

RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134).

Voltages (per diode)		PBYR30035	40	45 CT	
Repetitive peak reverse voltage	V_{RRM}	max. 35	40	45	V
Crest working reverse voltage	V_{RWM}	max. 35	40	45	V
Continuous reverse voltage	V_R	max. 35	40	45	V
Currents					
Average forward current squarewave; $\delta = 0.5$; up to $T_{mb} = 100\text{ }^\circ\text{C}$ (note 1)					
per diode	$I_{F(AV)}$	max.	150		A
per device	I_O	max.	300		A
Repetitive peak forward current per diode (note 1) $t_p = 20\text{ }\mu\text{s}$; $\delta = 0.02$					
	I_{FRM}	max.	2500		A
Non-repetitive peak forward current half sinewave; $T_j = 125\text{ }^\circ\text{C}$ prior to surge; with reapplied V_{RWM} max $t = 8.3\text{ ms}$					
	I_{FSM}	max.	2500		A
	I_{FSM}	max.	2000		A
I^2t for fusing ($t = 10\text{ ms}$; per device)					
	I^2t	max.	20000		A ² s
Reverse surge current (per diode) $t_p = 2\text{ }\mu\text{s}$; $\delta = 0.001$					
	I_{RRM}	max.	2.0		A
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Temperatures					
Storage temperature	T_{stg}		-65 to +175		$^\circ\text{C}$
Junction temperature	T_j	max.	150		$^\circ\text{C}$
CHARACTERISTICS (per diode)					
Forward voltage (note 2)					
$I_F = 150\text{ A}$; $T_j = 150\text{ }^\circ\text{C}$	V_F	<	0.66		V
$I_F = 300\text{ A}$; $T_j = 125\text{ }^\circ\text{C}$	V_F	typ.	0.77		V
$I_F = 150\text{ A}$; $T_j = 125\text{ }^\circ\text{C}$	V_F	typ.	0.62		V
$I_F = 150\text{ A}$; $T_j = 25\text{ }^\circ\text{C}$	V_F	<	0.72		V
Reverse current					
$V_R = V_{RWM}$ max; $T_j = 125\text{ }^\circ\text{C}$	I_R	<	300		mA
$V_R = V_{RWM}$ max; $T_j = 25\text{ }^\circ\text{C}$	I_R	<	4.0		mA
THERMAL RESISTANCE					
Junction to mounting-base (per diode)	$R_{th\ j-mb}$	<	0.4		K/W

Notes:

1. Assuming no reverse leakage losses.
2. Measured under pulse conditions to avoid excessive dissipation.

SQUAREWAVE OPERATION (Figs.3 and 4)

DEVELOPMENT DATA

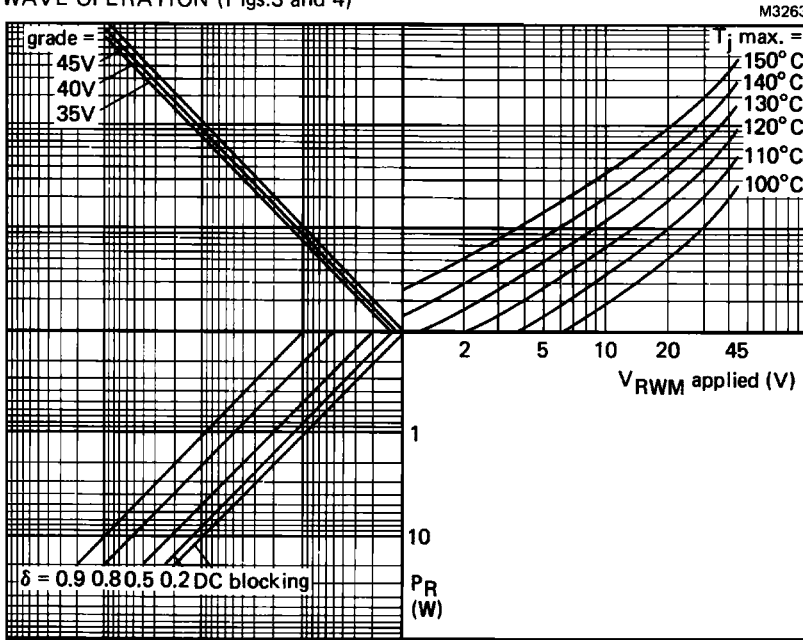


Fig.3 NOMOGRAM: for calculation of P_R (reverse leakage power dissipation) for a given T_j max., V_{RWM} applied, voltage grade and duty cycle; per diode.

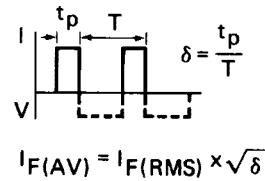
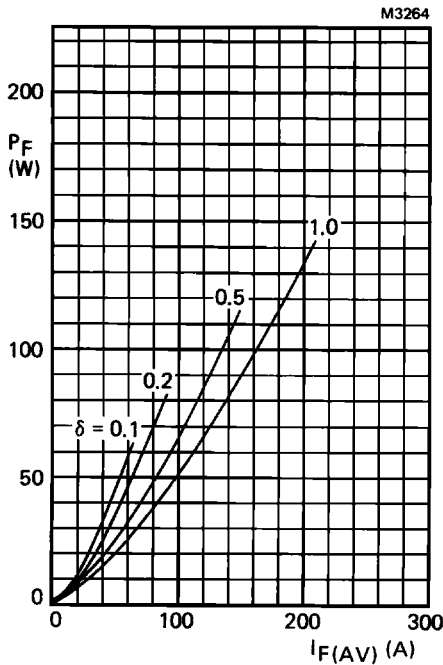


Fig.4 Forward current power rating; per diode.

SINUSOIDAL OPERATION (Figs.5 and 6)

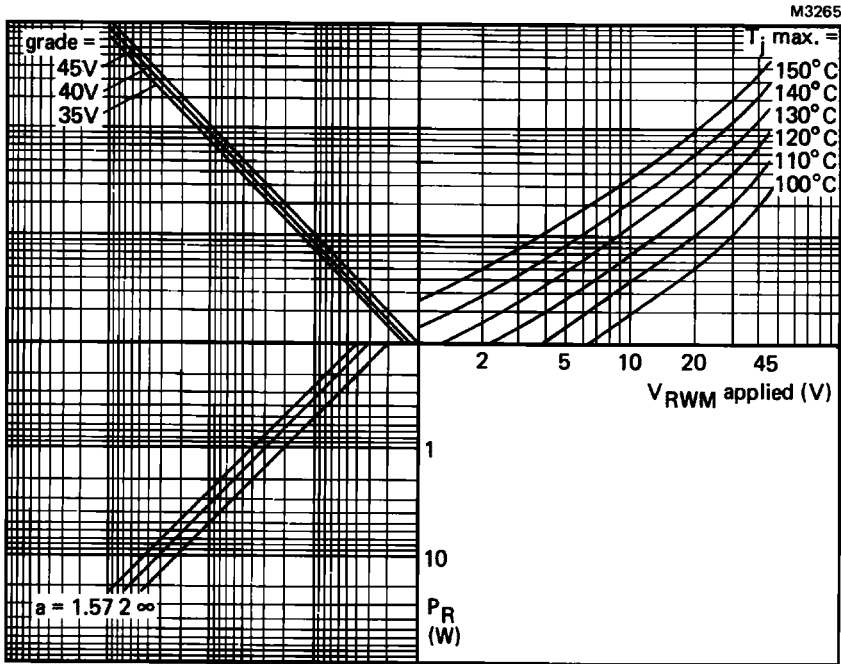


Fig.5 NOMOGRAM: for calculation of P_R (reverse leakage power dissipation) for a given T_j max., V_{RWM} applied, voltage grade and form factor; per diode.
 $a = \text{form factor} = I_F(\text{RMS})/I_F(\text{AV})$.

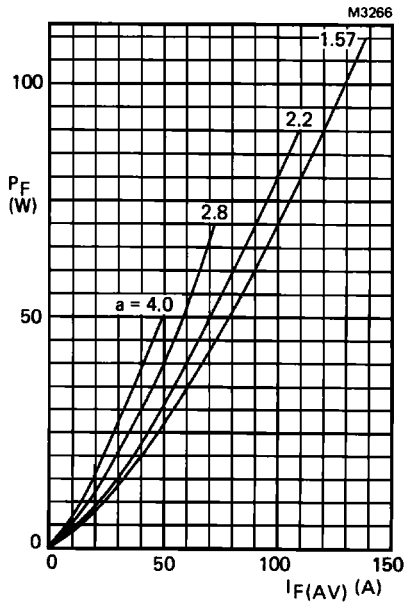


Fig.6 Forward current power rating; per diode.

DEVELOPMENT DATA

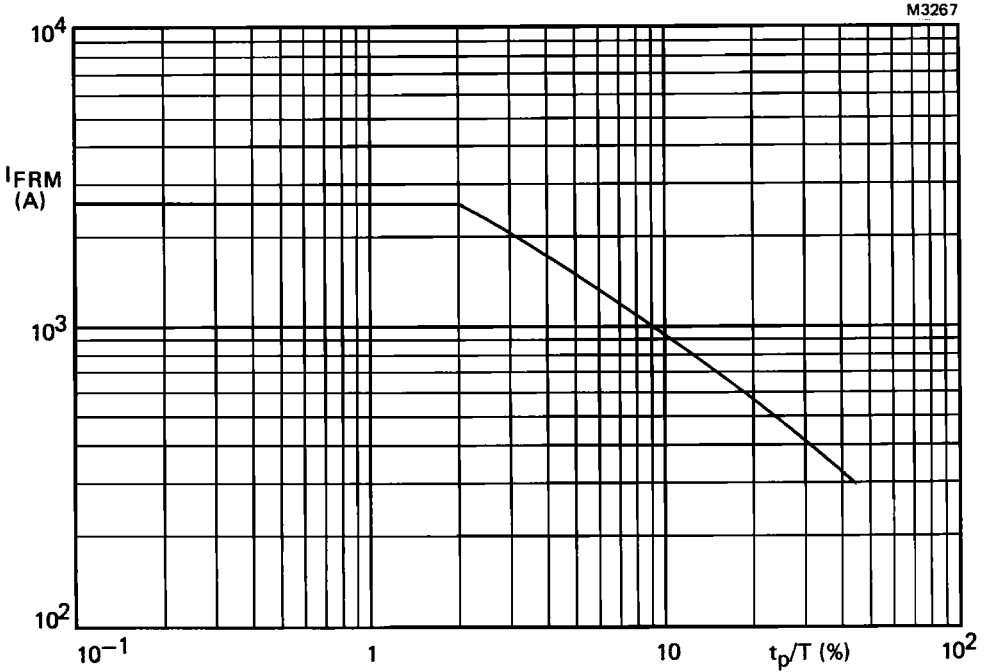
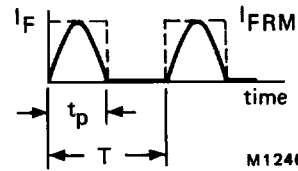
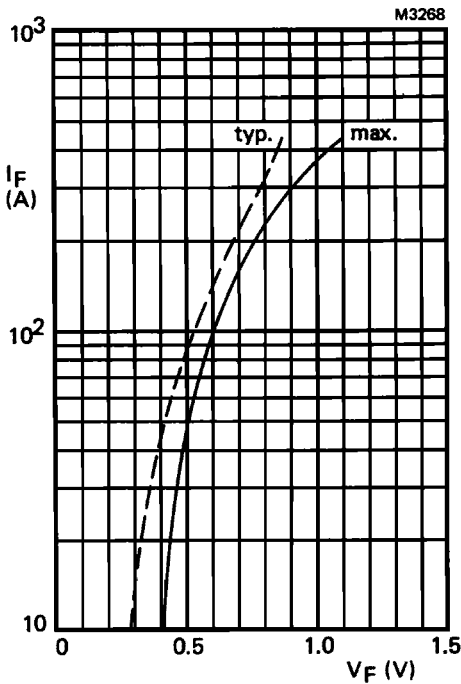


Fig.7 Maximum permissible repetitive peak forward current for either square or sinusoidal current for $1 \mu s < t_p < 1 ms$; per diode.



Definition of I_{FRM} and t_p/T .

Fig.8 Forward voltage; per diode;
 — $T_j = 25^\circ C$; - - - $T_j = 125^\circ C$.

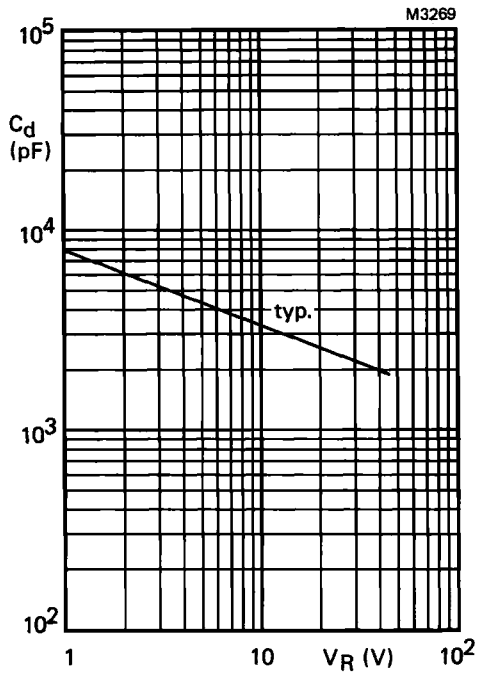


Fig.9 $f = 1 \text{ MHz}$; $T_j = 25 \text{ to } 125 \text{ }^\circ\text{C}$ per diode.

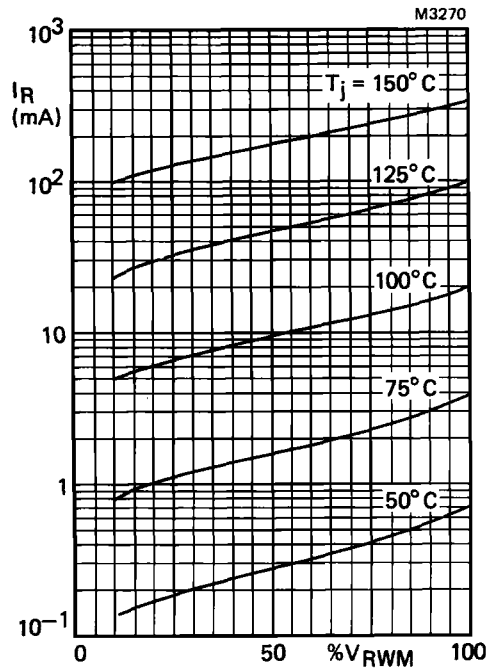


Fig.10 Typical values; per diode.