

Thyristors

(Fast Switching)

DCR913



Technical Data

Typical applications : High power invertors & choppers, Railway traction, UPS, Induction heating, AC motor drives & Cyclconvertors.

Type No.	V_{RRM} (Volts)	V_{RSM} (Volts)
DCR913/16	1600	1700
DCR913/18	1800	1900
DCR913/20	2000	2100

Features

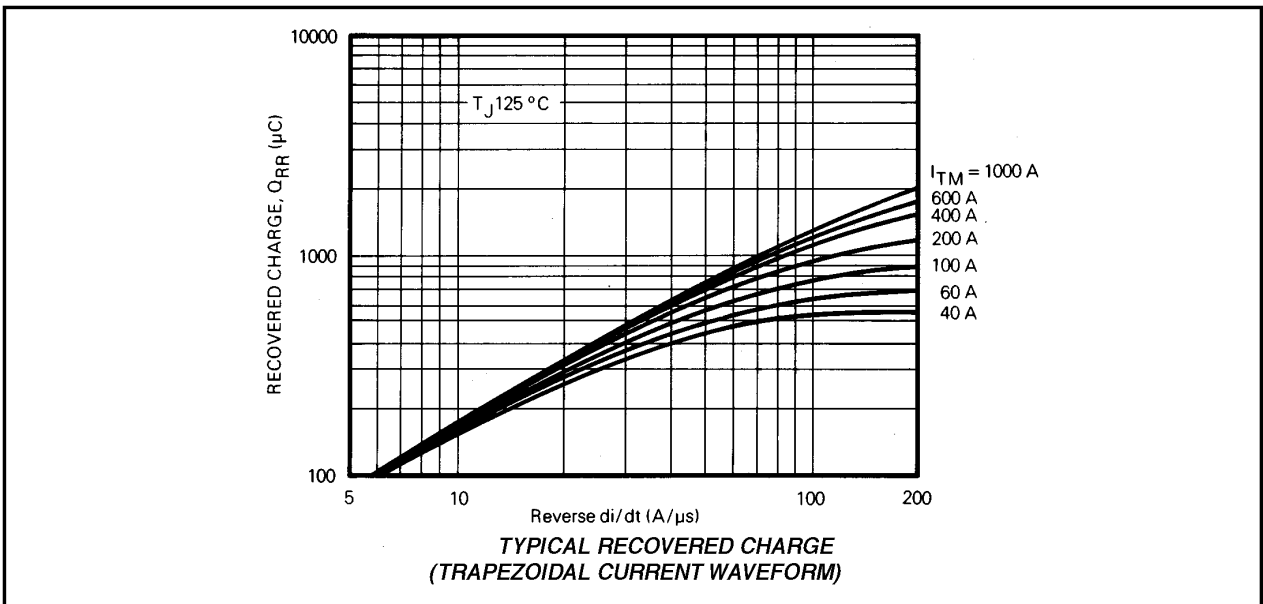
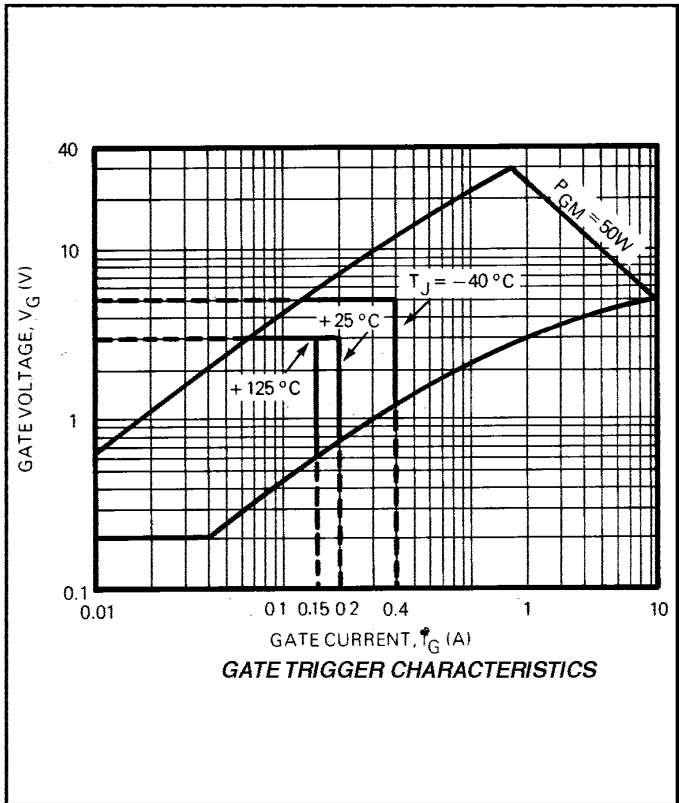
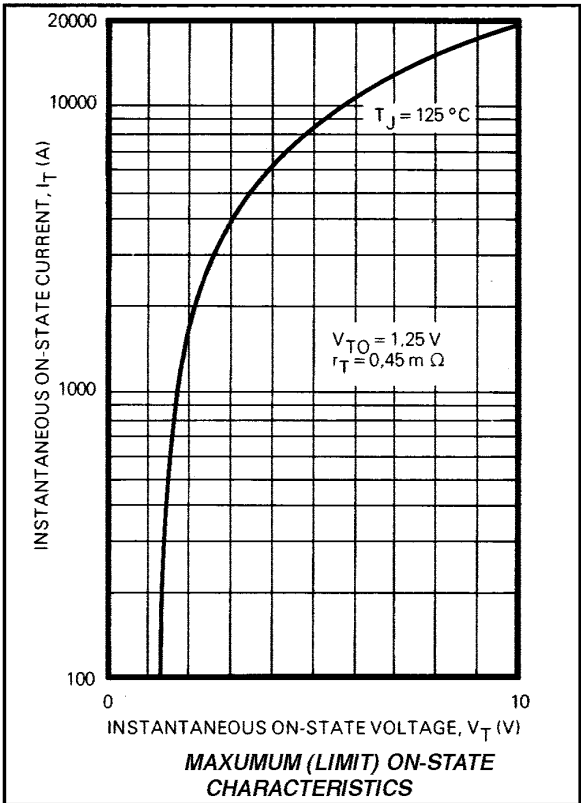
- Double side cooling.
- Voltage grade upto 2000V
- High surge capability.
- Weight 500gm (Approx.)

Symbol	Conditions	Values
$I_{T(AV)}$	Half wave resistive load; $T_c = 80^\circ C$	828 A
I_{TSM}	$T_{vj} = 125^\circ C$; 10 ms half sine, $V_R = 0$	17.0 KA
I^2t	$T_{vj} = 125^\circ C$, 10 ms half sine, $V_R = 0$	1445000 A ² s
I_{GT} V_{GT} dv/dt $[di/dt]_{CR}$ t_q	$T_{vj} = 25^\circ C$; $V_{DRM} = 5V$ $T_{vj} = 25^\circ C$; $V_{DRM} = 5V$ $T_{vj} = 125^\circ C$; Voltage = 67 % V_{DRM} Repetitive 50 Hz Non-repetitive $T_{vj} = 125^\circ C$; $I_T = 250 A$; $V_R = 50 V$ $dv/dt = 20 V/\mu s$ $di/dt = 50 A/\mu s$	200 mA 3.0V *300V/ μs 500 A/ μs 800 A/ μs 50 μs
V_T V_O R_O I_{RRM}/I_{DRM}	$T_{vj} = 25^\circ C$; $I_T = 2000 A$ $T_{vj} = 125^\circ C$ $T_{vj} = 125^\circ C$ $T_{vj} = 125^\circ C$	2.15 V max 1.25 V 0.45 m 60 mA
I_H I_L	$V_D = 12V$ $T_{vj} = 25^\circ C$; Typical value	100 mA 300 mA
$R_{th(j-c)}$ $R_{th(c-h)}$ T_{vj} T_{stg}	dc	0.020 $^\circ C/W$ 0.006 $^\circ C/W$ +125 $^\circ C$ -40...+125 $^\circ C$
Mounting Force		20 - 22 KN
Case outline		F

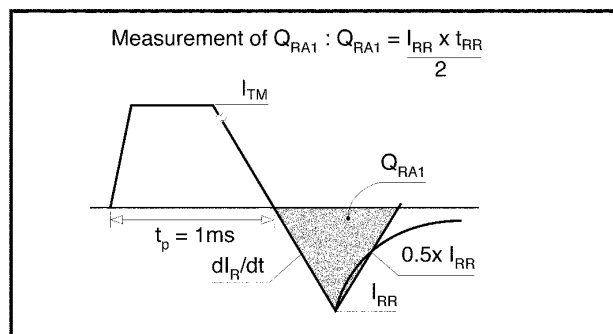
* Higher dv/dt selection available.

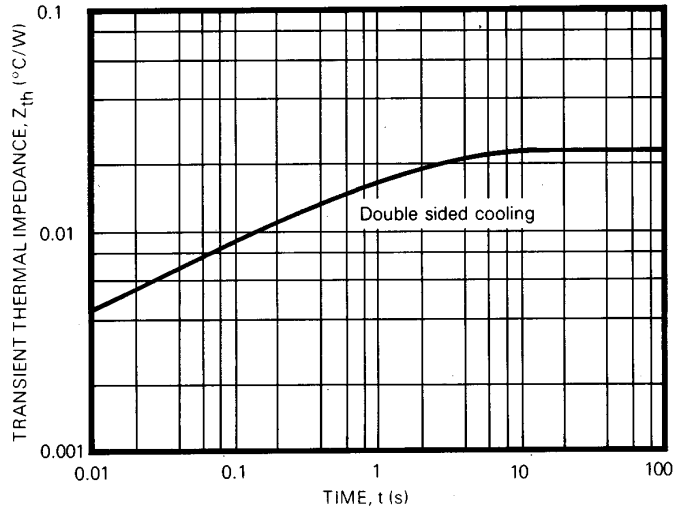


CURVES

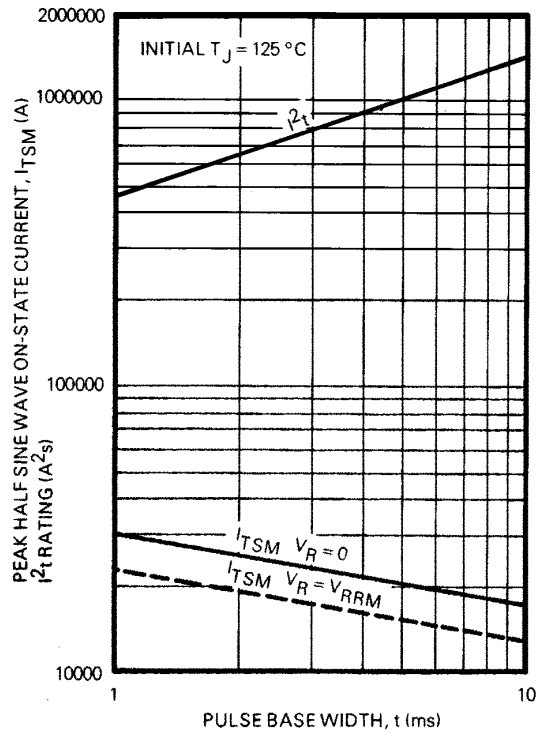


MEASUREMENT OF RECOVERED CHARGE - Q_{RA1}

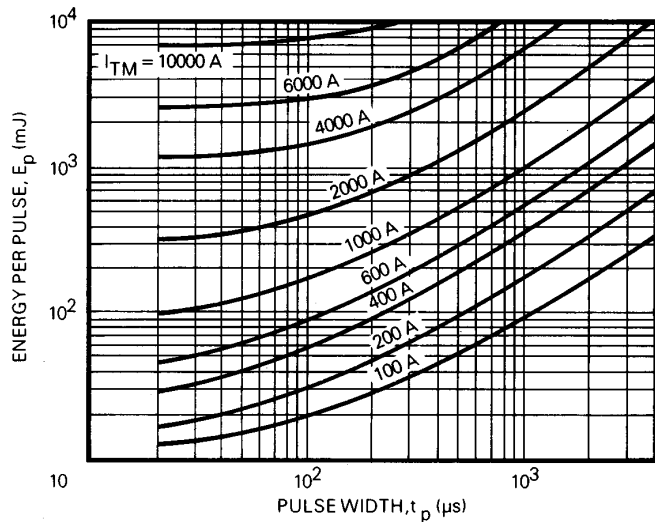




TRANSIENT THERMAL IMPEDANCE - JUNCTION TO CASE



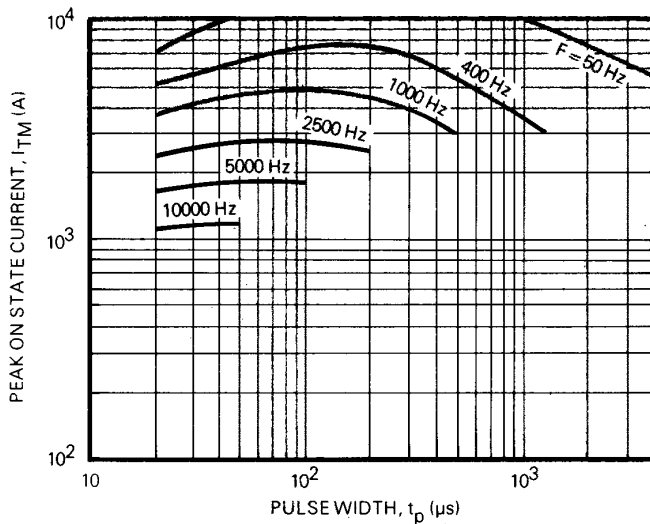
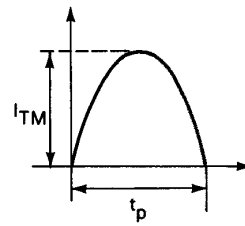
NON-REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND I^2t RATING



ENERGY PER PULSE FOR SINUSOIDAL PULSES

NOTES:

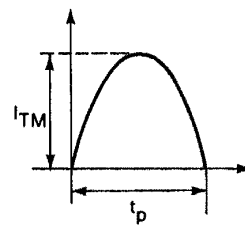
1. $V_D \leq 600V$.
2. $V_R \leq 10V$.
3. R.C Snubber, $C = 0.22\mu F$, $R = 4.7\Omega$

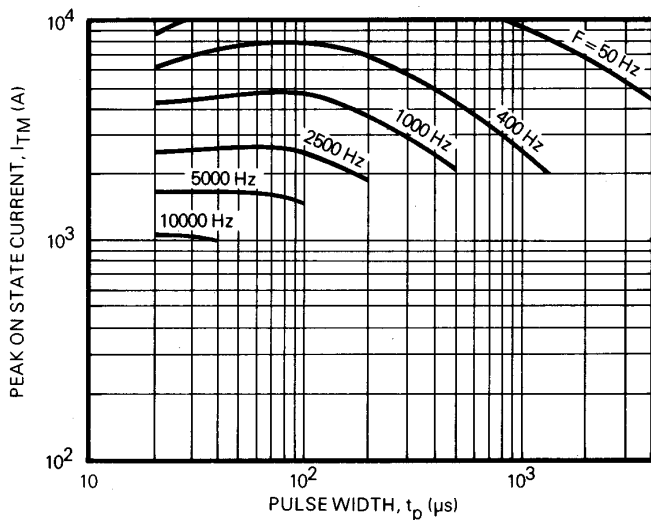


MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs PULSE WIDTH FOR $T_c = 65^\circ C$

NOTES:

1. $V_D \leq 600V$.
2. $V_R \leq 10V$.
3. R.C Snubber, $C = 0.22\mu F$, $R = 4.7\Omega$

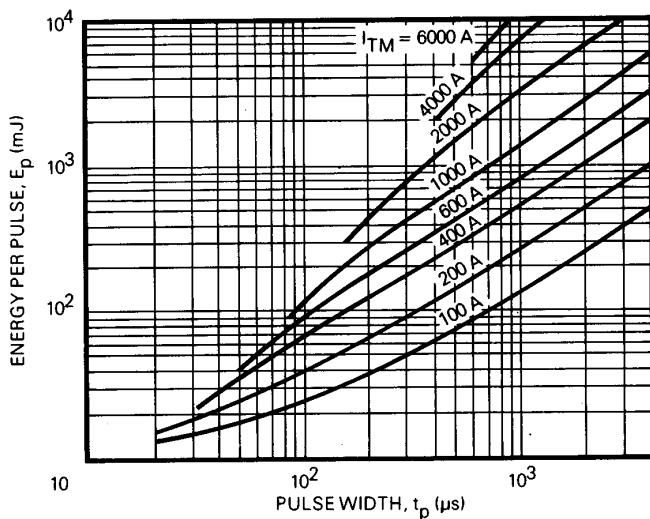
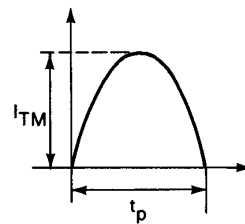




MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs PULSE WIDTH FOR $T_c = 90^\circ C$

NOTES:

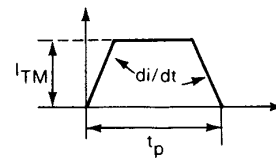
1. $V_D \leq 600V$.
2. $V_R \leq 10V$.
3. R.C Snubber, $C = 0.22\mu F$, $R = 4.7\Omega$

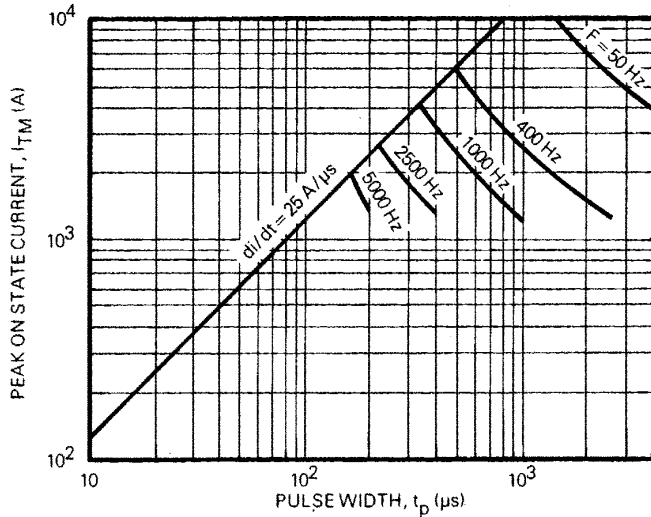


ENERGY PER PULSE FOR TRAPEZOIDAL PULSES

NOTES:

1. $di/dt = 25A/\mu s$
2. $V_D \leq 600V$.
3. $V_R \leq 10V$.
4. R.C Snubber, $C = 0.22\mu F$, $R = 4.7\Omega$

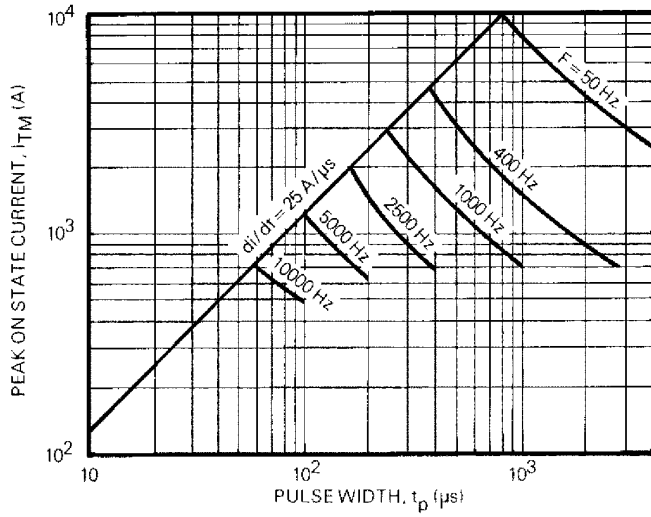
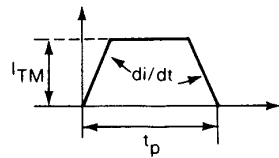




MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs PULSE WIDTH FOR $T_c = 65^\circ\text{C}$

NOTES:

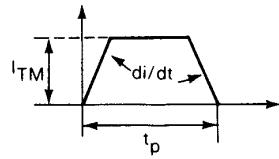
1. $di/dt = 25\text{A}/\mu\text{s}$
2. $V_D \leq 600\text{V}$.
3. $V_R \leq 10\text{V}$.
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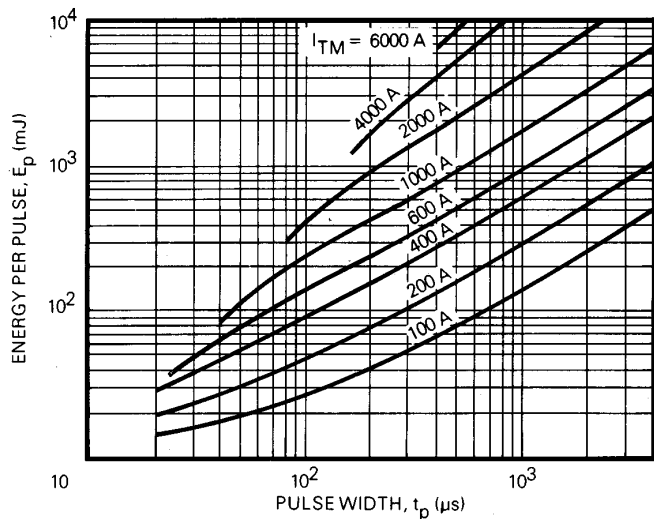


MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs PULSE WIDTH FOR $T_c = 90^\circ\text{C}$

NOTES:

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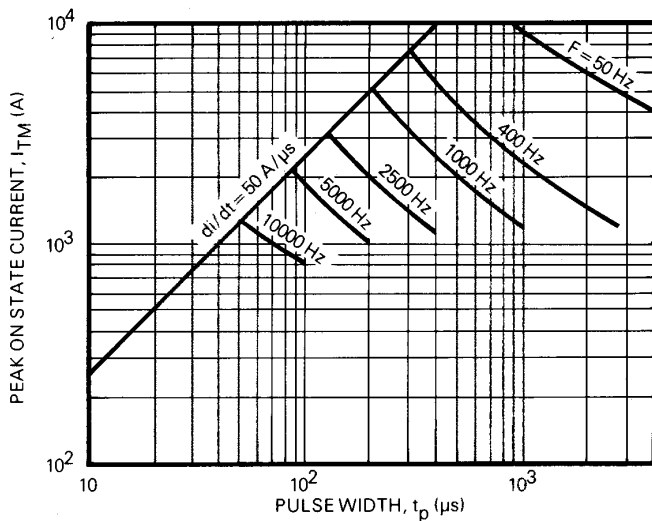
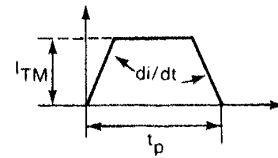




ENERGY PER PULSE FOR TRAPEZOIDAL PULSES

NOTES:

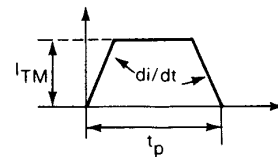
1. $di/dt = 50A/\mu s$
2. $V_D \leq 600V$.
3. $V_R \leq 10V$.
4. R.C Snubber, $C = 0.22\mu F$, $R = 4.7\Omega$

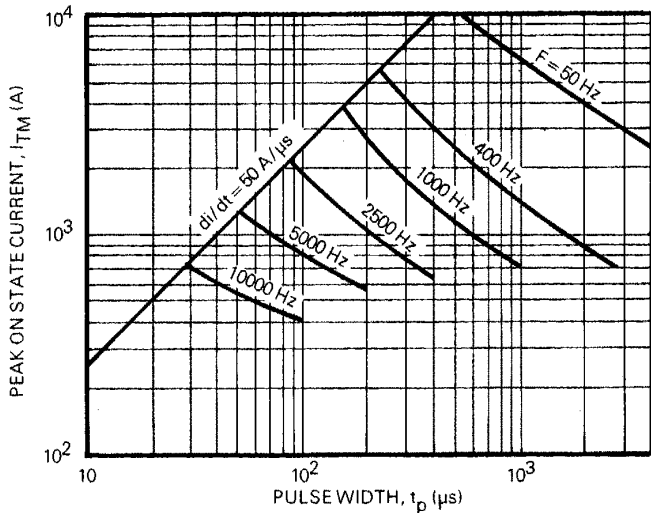


MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs PULSE WIDTH FOR $T_c = 65^\circ C$

NOTES:

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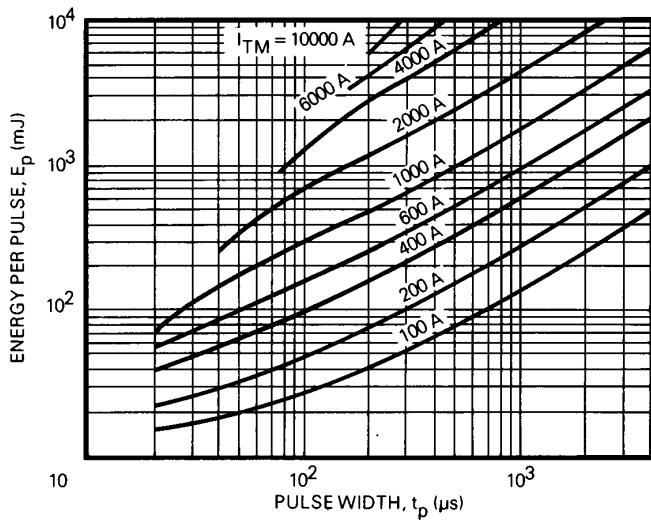
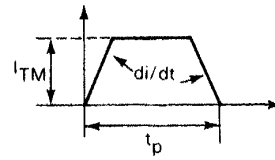




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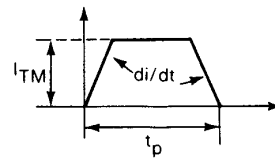
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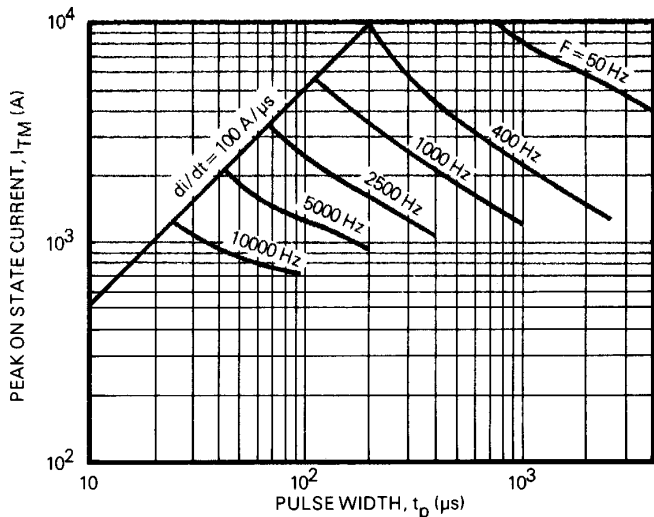


ENERGY PER PULSE FOR TRAPEZOIDAL PULSES

NOTES:

1. $di/dt = 100 A/\mu s$
2. $V_D \leq 600V$.
3. $V_R \leq 10V$.
4. R.C Snubber, $C = 0.22\mu F$, $R = 4.7\Omega$

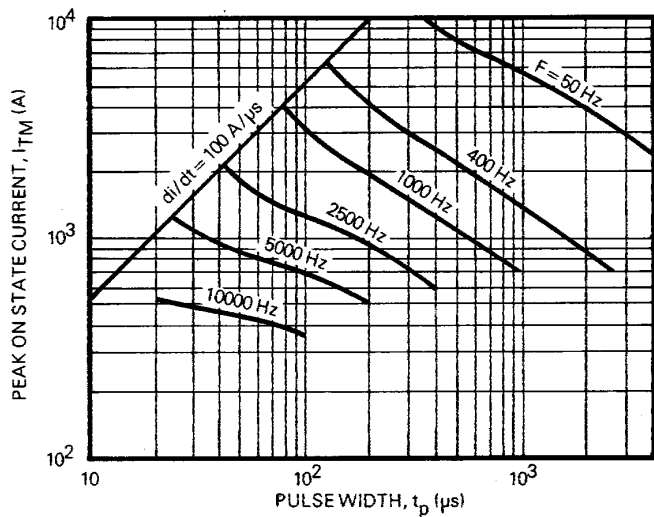
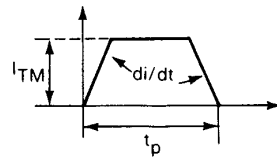




MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs PULSE WIDTH FOR $T_c = 65^\circ\text{C}$

NOTES:

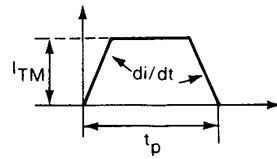
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MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs PULSE WIDTH FOR $T_c = 90^\circ\text{C}$

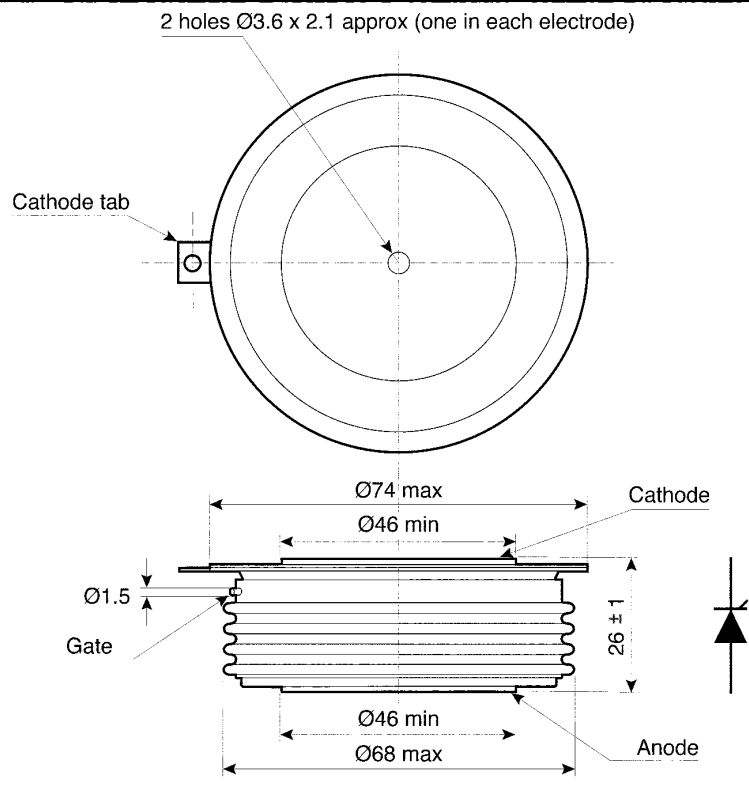
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PACKAGE DETAILS

DO NOT SCALE



Nominal weight: 500g
Clamping force: 20 - 22 kN
All dimensions in mm
Package outline code: F