

# Thyristors

## (Fast Switching)

# DCR709

### Technical Data

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

### Features

- Double side cooling.
- Voltage grade upto 1400V.
- High surge capability.
- Weight 310gm (Approx.)

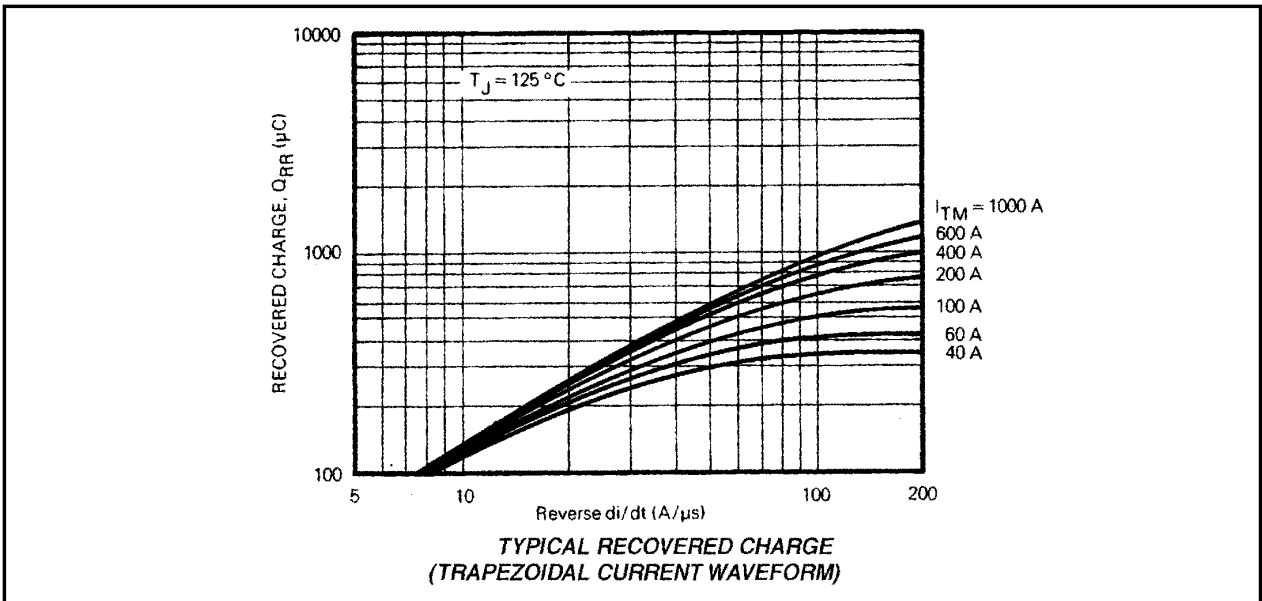
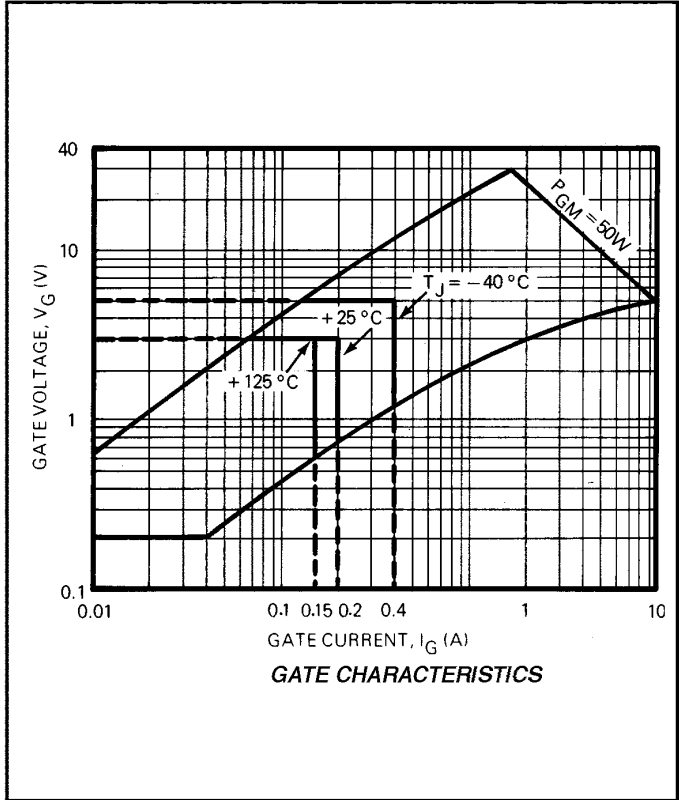
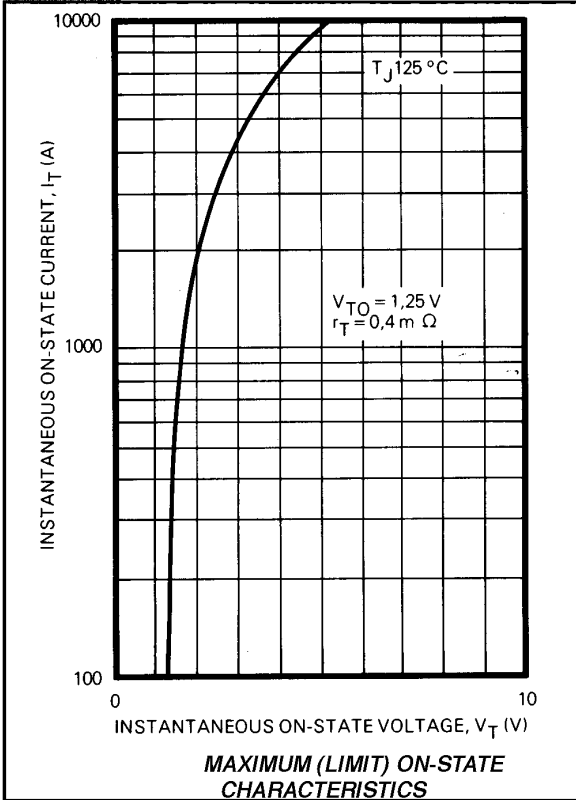
Type No.	$V_{RRM}$ (Volts)	$V_{RSM}$ (Volts)
DCR709/12	1200	1300
DCR709/14	1400	1500

Symbol	Conditions	Values
$I_{T(AV)}$	Half wave resistive load; $T_C = 80^\circ\text{C}$	573 A
$I_{TSM}$	$T_{vj} = 125^\circ\text{C}$ ; 10 ms half sine, $V_R = 0$	12.0 KA
$I^2t$	$T_{vj} = 125^\circ\text{C}$ , 10 ms half sine, $V_R = 0$	720000 A <sup>2</sup> s
$I_{GT}$ $V_{GT}$ $dv/dt$ $[di/dt]_{CR}$ $t_q$	$T_{vj} = 25^\circ\text{C}$ ; $V_{DRM} = 5\text{V}$ $T_{vj} = 25^\circ\text{C}$ ; $V_{DRM} = 5\text{V}$ $T_{vj} = 125^\circ\text{C}$ ; Voltage = 67 % $V_{DRM}$ Repetitive 50 Hz Non-repetitive $T_{vj} = 125^\circ\text{C}$ ; $I_T = 250\text{A}$ ; $V_R = 50\text{V}$ $dv/dt = 20\text{V}/\mu\text{s}$ $di/dt = 50\text{A}/\mu\text{s}$	200 mA 3.0V *300V/ $\mu\text{s}$ 500 A/ $\mu\text{s}$ 800 A/ $\mu\text{s}$ 25 $\mu\text{s}$
$V_T$ $V_O$ $R_O$ $I_{RRM}/I_{DRM}$	$T_{vj} = 25^\circ\text{C}$ ; $I_T = 2000\text{A}$ $T_{vj} = 125^\circ\text{C}$ $T_{vj} = 125^\circ\text{C}$ $T_{vj} = 125^\circ\text{C}$	2.05 V max 1.25 V 0.40 m 40 mA
$I_H$ $I_L$	$V_D = 12\text{V}$ $V_D = 12\text{V}$	100 mA 300 mA
$R_{th(j-c)}$ $R_{th(c-h)}$ $T_{vj}$ $T_{stg}$	dc	0.040 $^\circ\text{C}/\text{W}$ 0.010 $^\circ\text{C}/\text{W}$ +125 $^\circ\text{C}$ -40...+125 $^\circ\text{C}$
Mounting Force		12.5 - 15 KN
Case outline		G

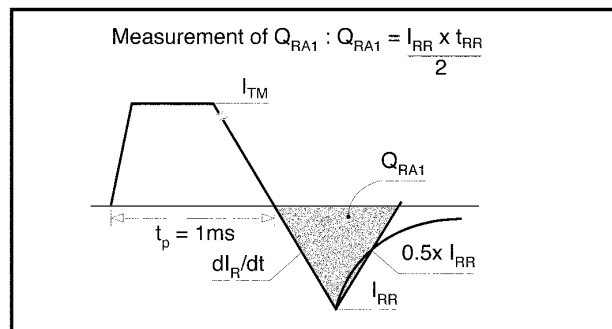
\* Higher dv/dt selection available.

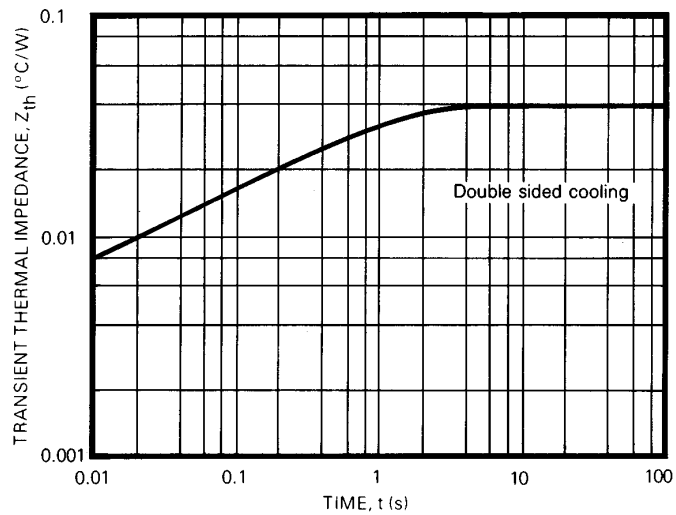


**CURVES**

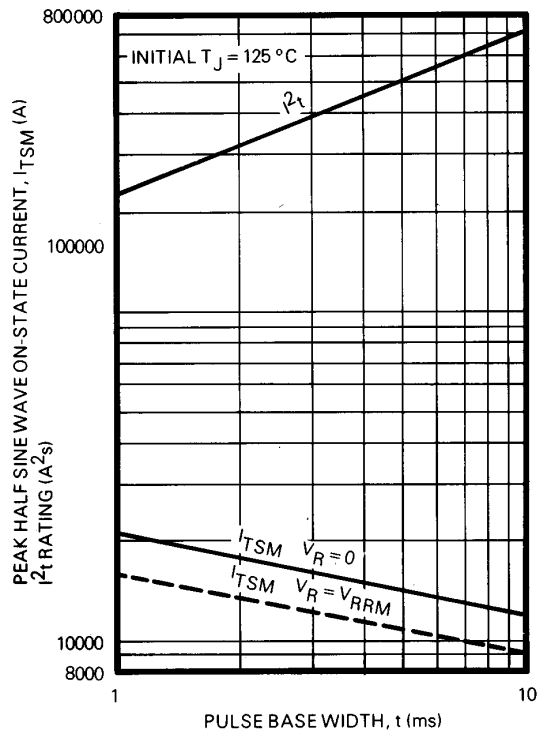


**MEASUREMENT OF RECOVERED CHARGE -  $Q_{RA1}$**

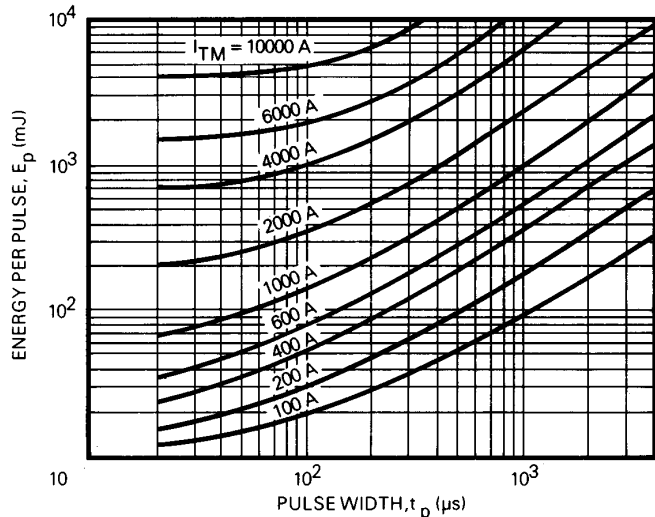




TRANSIENT THERMAL IMPEDANCE - JUNCTION TO CASE



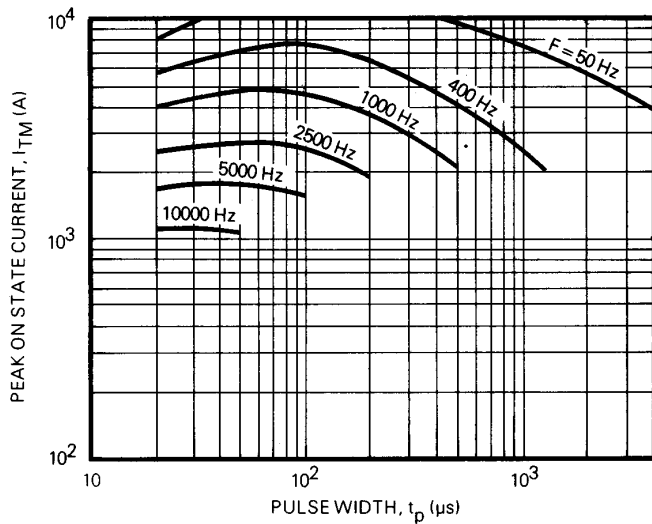
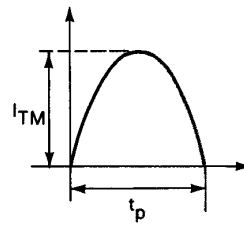
NON-REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND  $I_{TSM}^2 t$  RATING



ENERGY PER PULSE FOR SINUSOIDAL PULSES

**NOTES:**

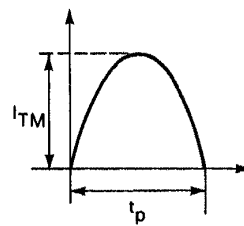
1.  $V_D \leq 600V$ .
2.  $V_R \leq 10V$ .
3. R.C Snubber,  $C = 0.22\mu F$ ,  $R = 4.7\Omega$

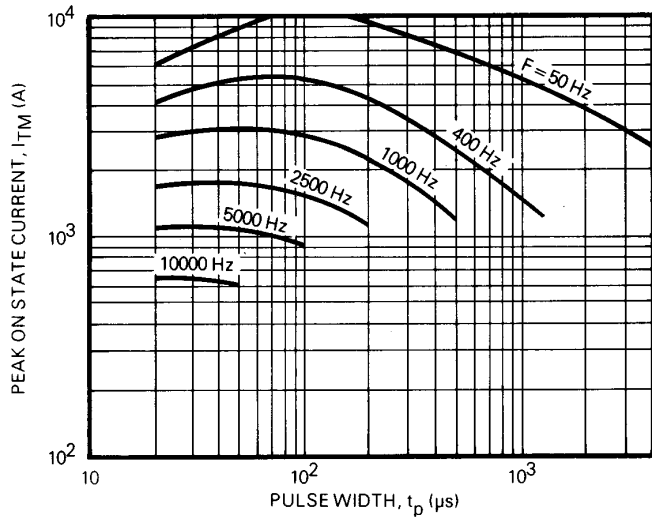


MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs PULSE WIDTH FOR  $T_c = 65^\circ C$

**NOTES:**

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

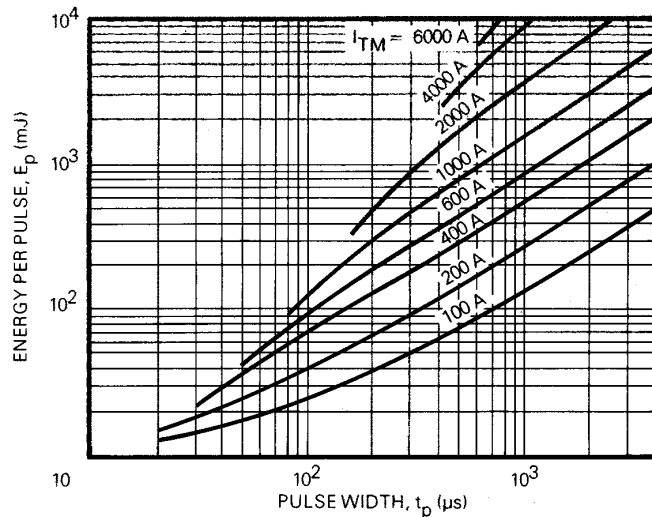
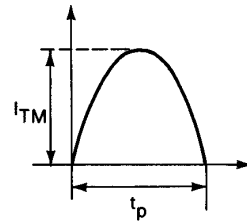




**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs PULSE WIDTH FOR  $T_c = 90^\circ C$**

**NOTES:**

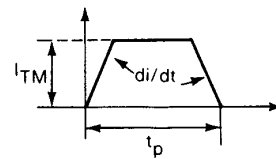
1.  $V_D \leq 600V$ .
2.  $V_R \leq 10V$ .
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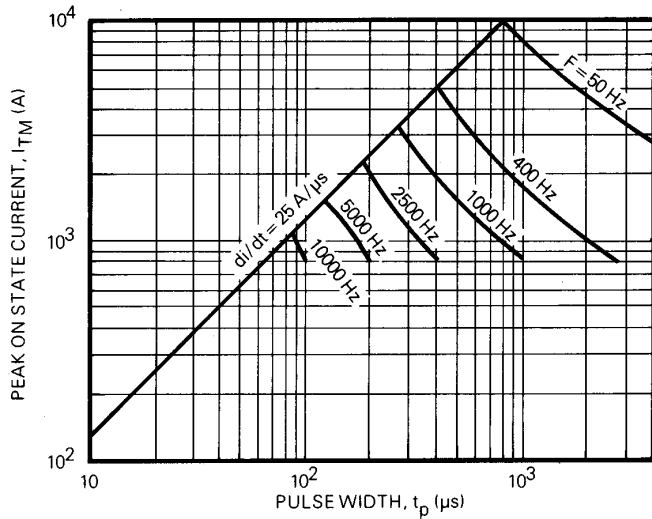


**ENERGY PER PULSE FOR TRAPEZOIDAL PULSES**

**NOTES:**

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

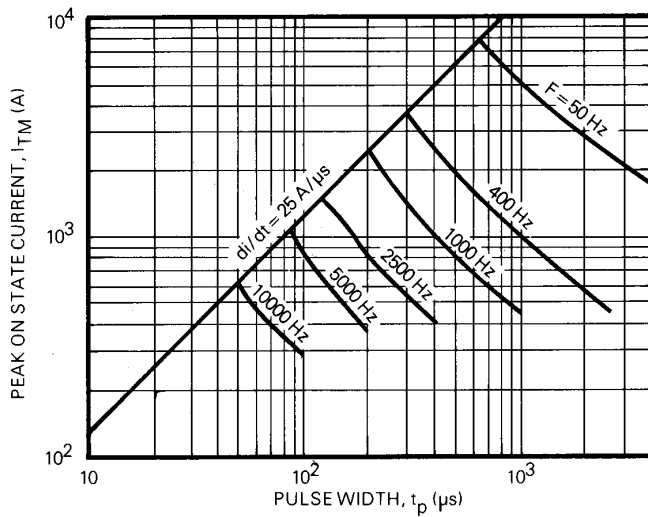
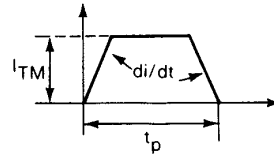




**MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT vs PULSE WIDTH FOR  $T_c = 65^\circ\text{C}$**

**NOTES:**

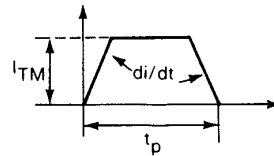
1.  $di/dt = 25\text{A}/\mu\text{s}$
2.  $V_D \leq 600\text{V}$ .
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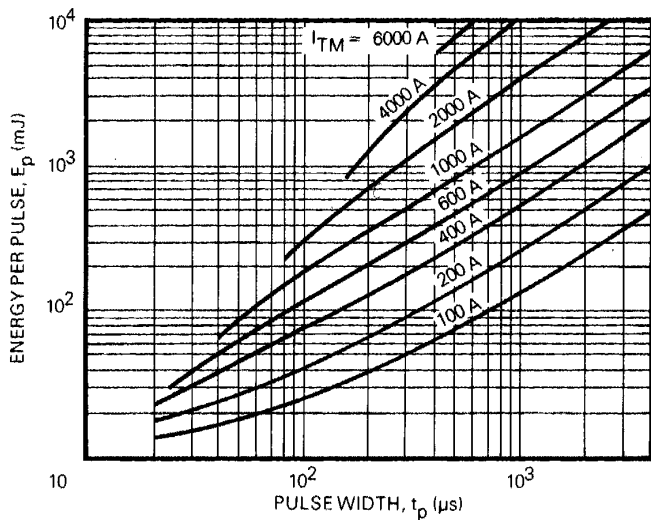


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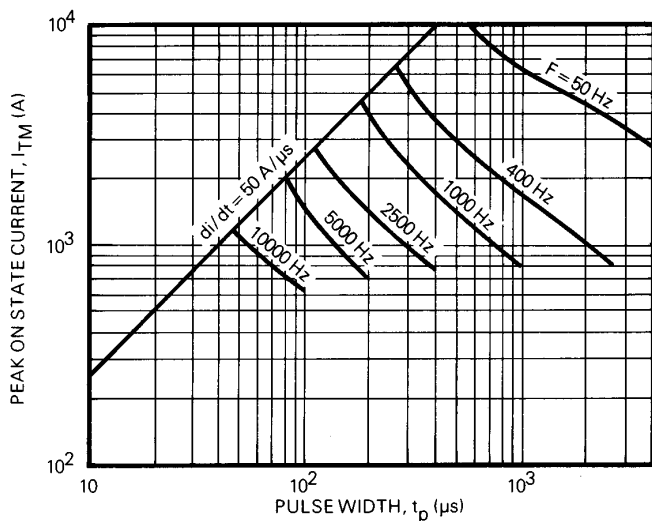
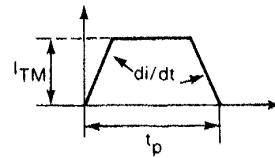




ENERGY PER PER FOR TRAPEZOIDAL PULSES

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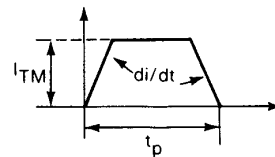
1.  $di/dt = 50A/\mu s$
2.  $V_D \leq 600V$ .
3.  $V_R \leq 10V$ .
4. R.C Snubber,  $C = 0.22\mu F$ ,  $R = 4.7\Omega$

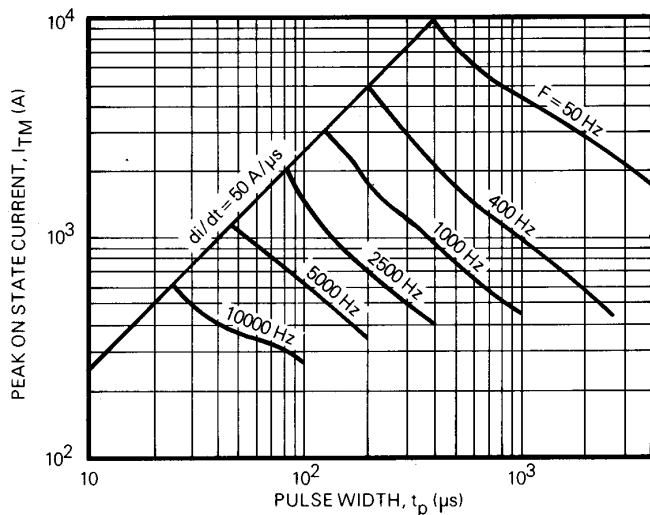


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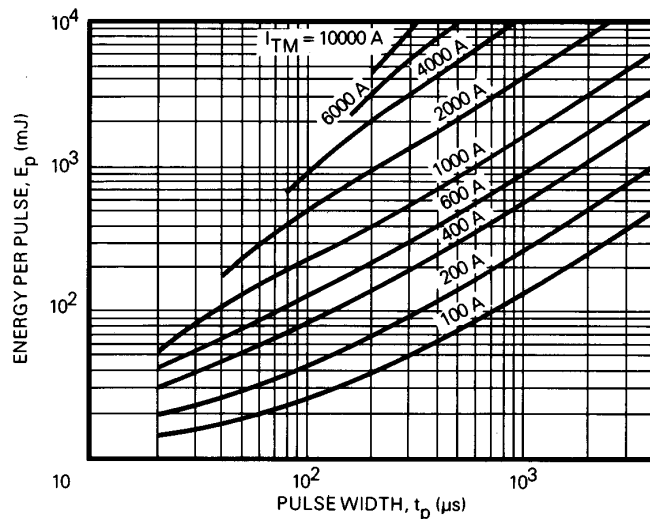
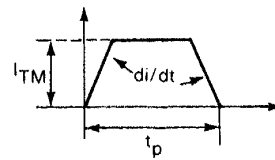




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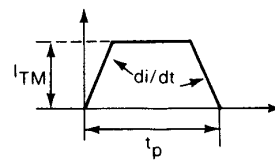
1.  $di/dt = 50\text{A}/\mu\text{s}$
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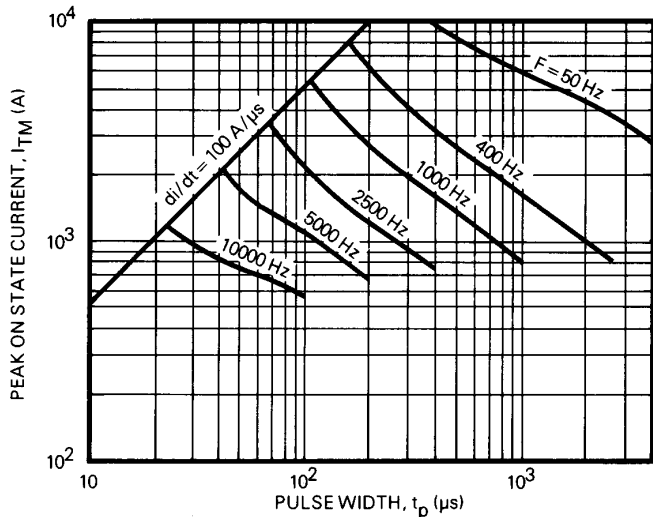
**ENERGY PER PULSE FOR TRAPEZOIDAL PULSES**

**NOTES:**

1.  $di/dt = 100\text{A}/\mu\text{s}$
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3.  $V_R \leq 10\text{V}$ .
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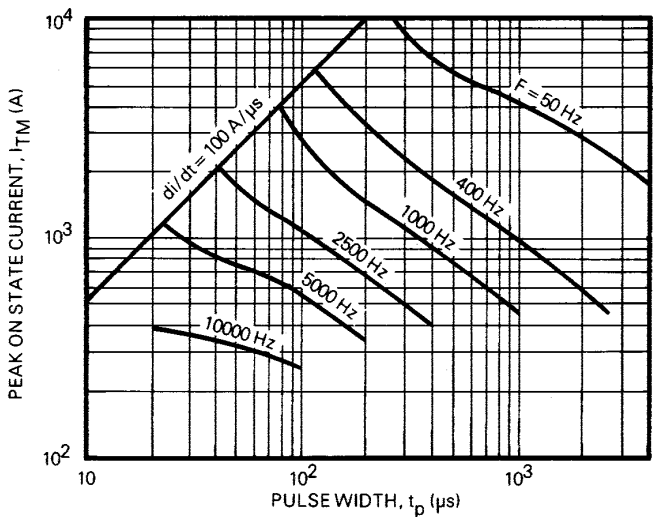
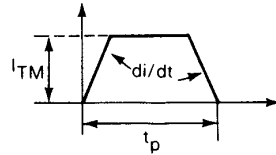




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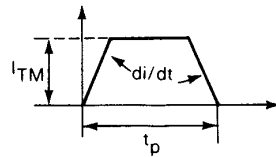
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# PACKAGE DETAILS

DO NOT SCALE

