

# Thyristors

## (Fast Switching)

# DCR444

### Technical Data

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

Type No.	$V_{RRM}$ (Volts)	$V_{RSM}$ (Volts)
DCR444/04	400	500
DCR444/08	800	900
DCR444/10	1000	1100
DCR444/12	1200	1300

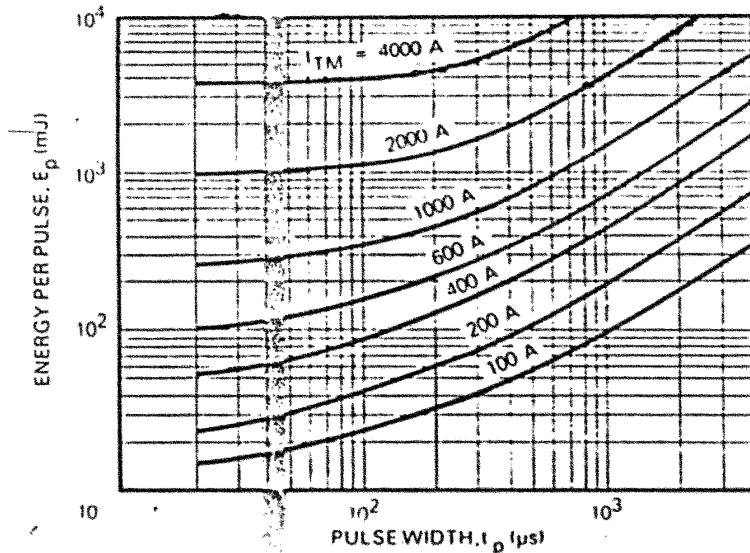
### Features

- Double side cooling.
- Voltage grade upto 1200V.
- High surge capability.
- Weight 50gm (Approx.)

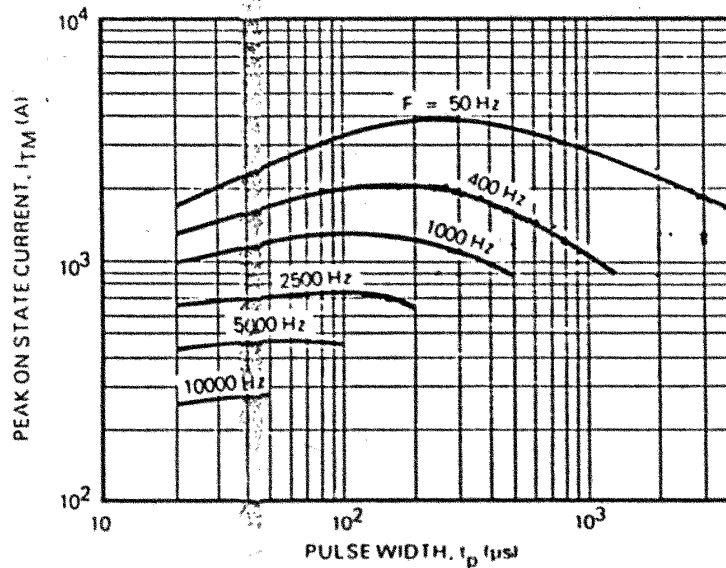
Symbol	Conditions	Values
$I_{T(AV)}$	Half wave resistive load $T_c = 80^\circ C$	280 A
$I_{TSM}$	$T_{vj} = 125^\circ C$ ; 10 ms half sine, $V_R = 0$	5000 A.
$I^2T$	$T_{vj} = 125^\circ C$ ; 10 ms half sine, $V_R = 0$	125000 A <sup>2</sup> s
$I_{GT}$	$T_{vj} = 25^\circ C$ ; $V_{DRM} = 5V$	200 mA
$V_{GT}$	$T_{vj} = 25^\circ C$ ; $V_{DRM} = 5V$	3.0 V
dv/dt	$T_{vj} = 125^\circ C$ ; Voltage = 67% $V_{DRM}$	*200 V/ $\mu$ s
$[di/dt]_{cr}$	Repetitive 50 Hz	500 A/ $\mu$ s
	Non-repetitive	800 A/ $\mu$ s
$t_q$	$T_{vj} = 25^\circ C$ ; $I_T = 200 A$ ; $V_R = 50V$ dv/dt = 200 V/ $\mu$ s di/dt = 30 A/ $\mu$ s	7-40 $\mu$ s
$V_T$	$T_{vj} = 25^\circ C$ ; $I_T = 600 A$	2.0 V max
$I_{RRM}/I_{DRM}$	$T_{vj} = 125^\circ C$	25 mA
$I_H$	$T_{vj} = 125^\circ C$ ; typical value	70 mA
$I_L$		200 mA
$R_{th(i-h)}$	dc	0.07 $^\circ C/W$
$R_{th(c-h)}$		0.02 $^\circ C/W$
$T_{vj}$		+125 $^\circ C$
$T_{stg}$		-40.....+ 125 $^\circ C$
Mounting Force		5 KN
Case outline		T

\* Higher dv/dt selection available.

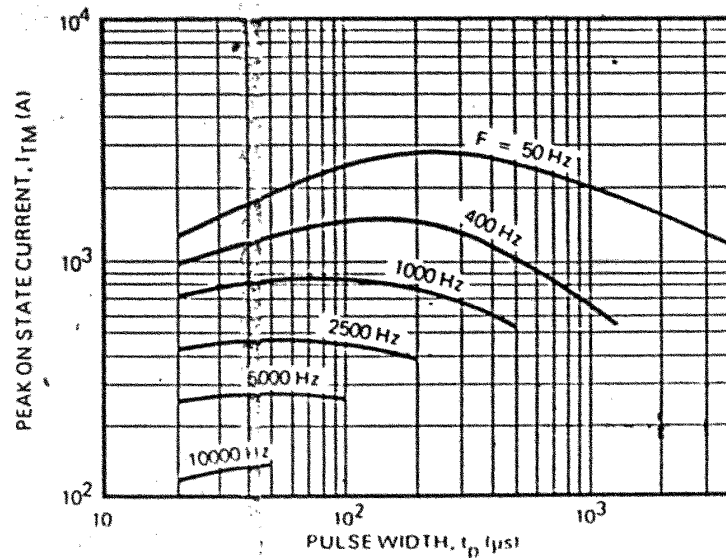




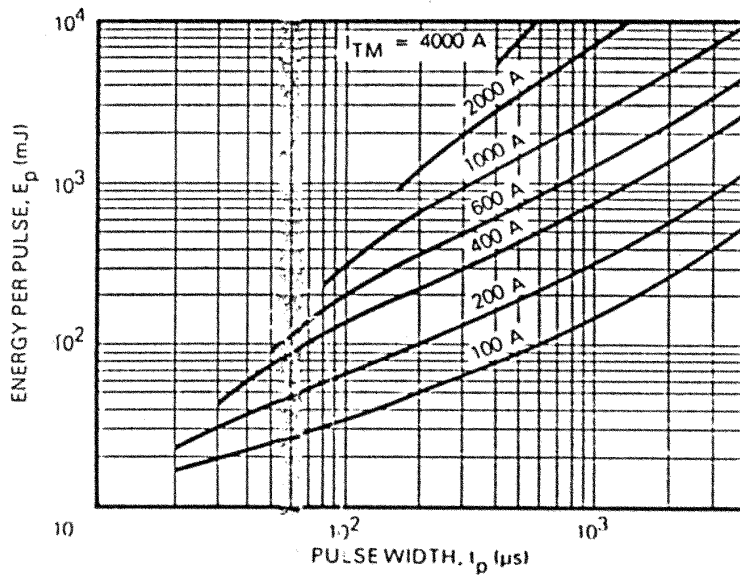
ENERGY PER PULSE FOR SINUSOIDAL PULSES.



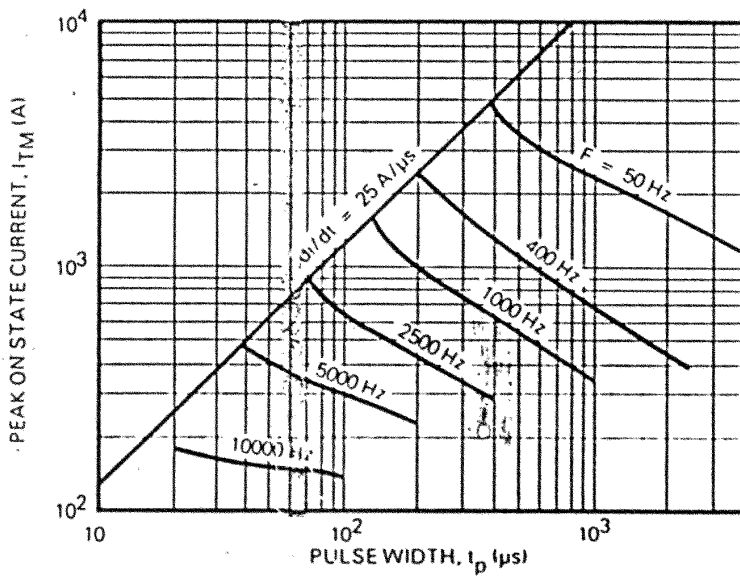
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR  $T_C = 65^\circ\text{C}$ .



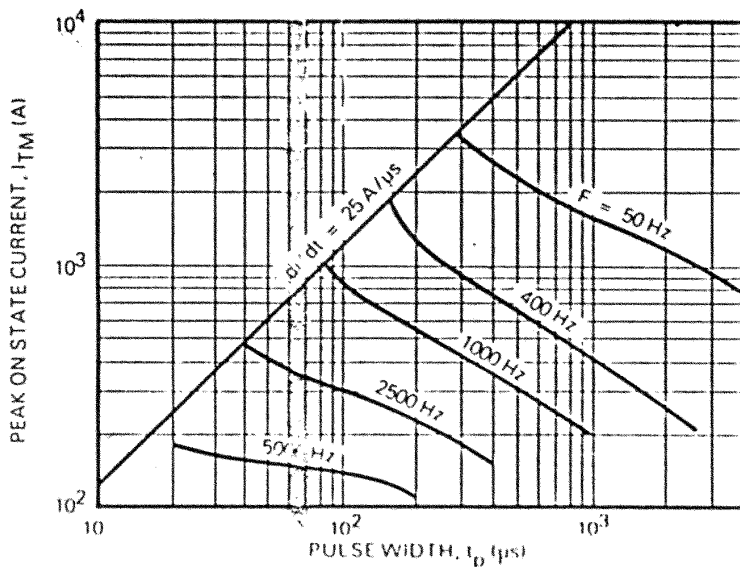
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR  $T_C = 90^\circ\text{C}$ .



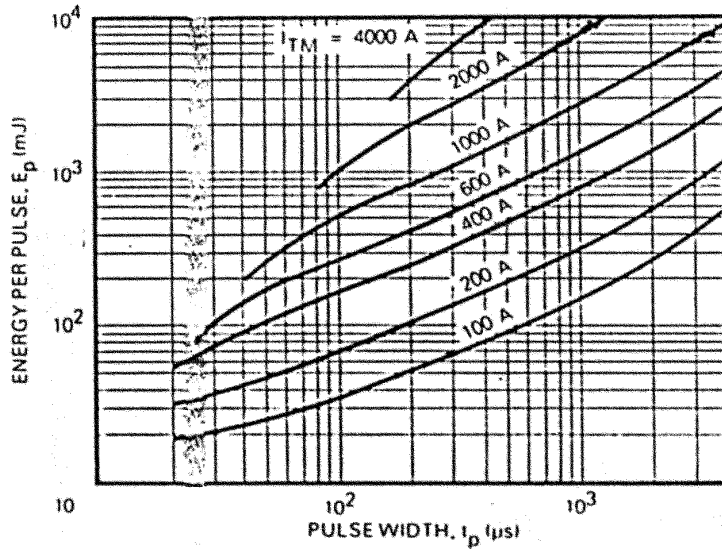
ENERGY PER PULSE FOR TRAPEZOIDAL PULSES.



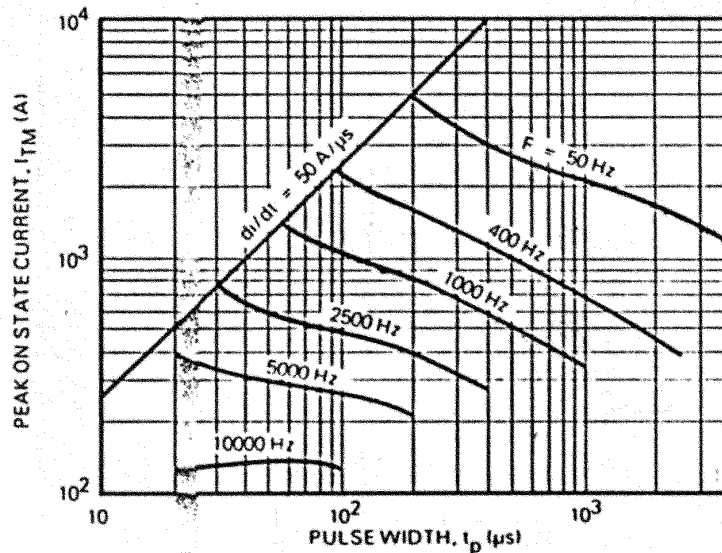
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR  $T_C = 65^\circ\text{C}$ .



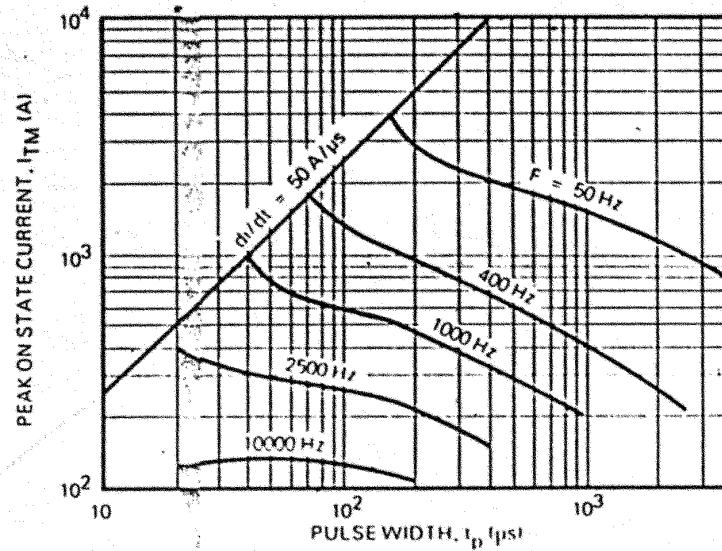
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS



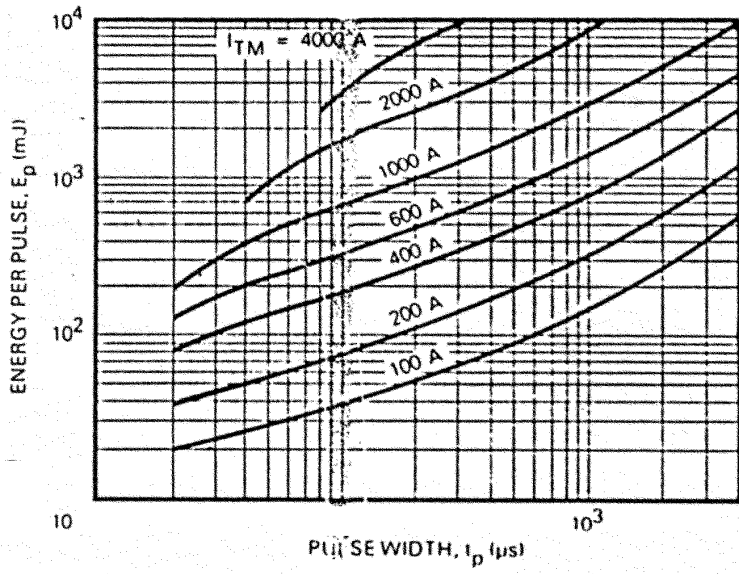
ENERGY PER PULSE FOR TRAPEZOIDAL PULSES.



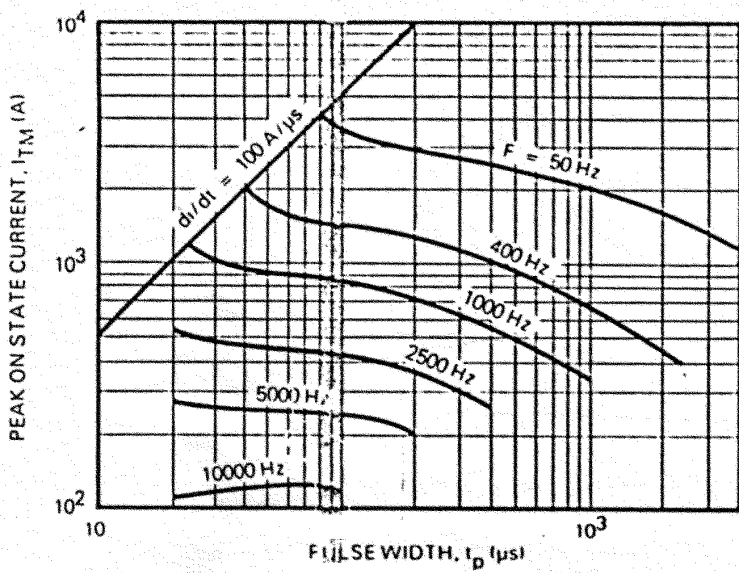
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR  $T_c = 65^\circ\text{C}$ .



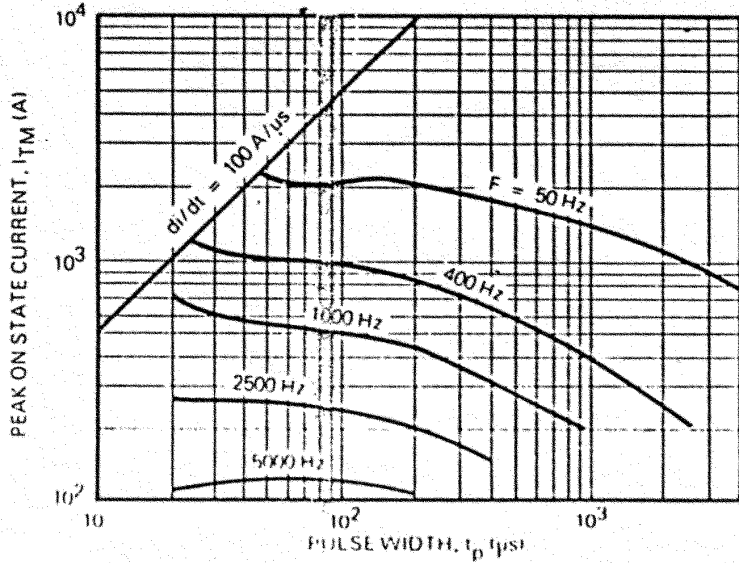
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR  $T_c = 90^\circ\text{C}$ .



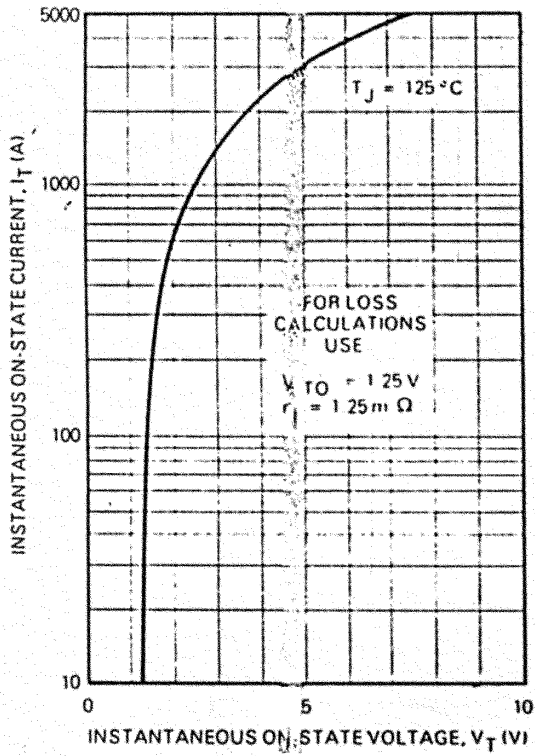
ENERGY PER PULSE FOR TRAPEZOIDAL PULSES.



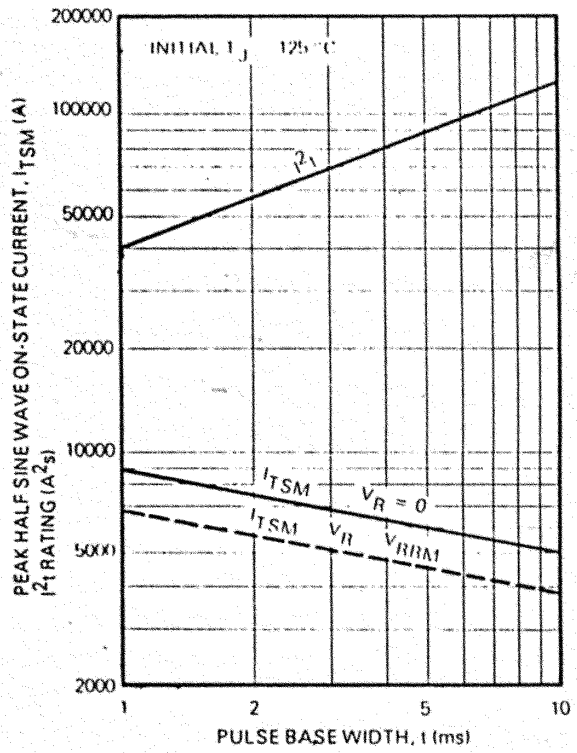
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR  $T_C = 65^\circ\text{C}$ .



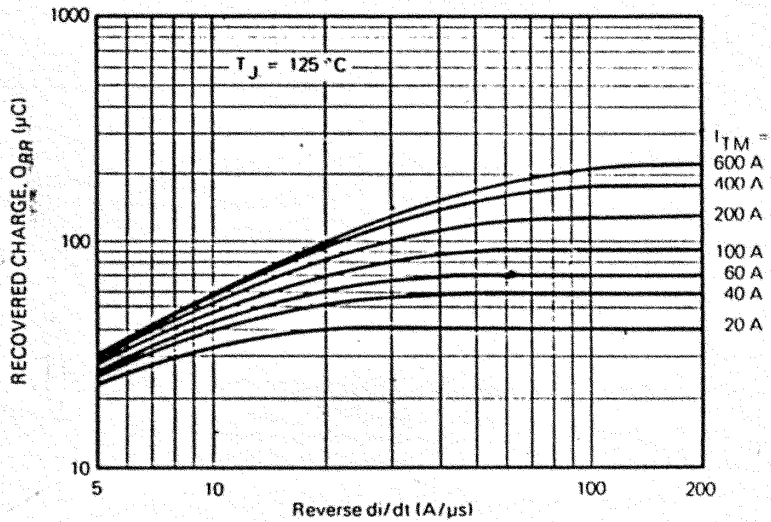
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT VERSUS PULSE WIDTH FOR  $T_C = 80^\circ\text{C}$ .



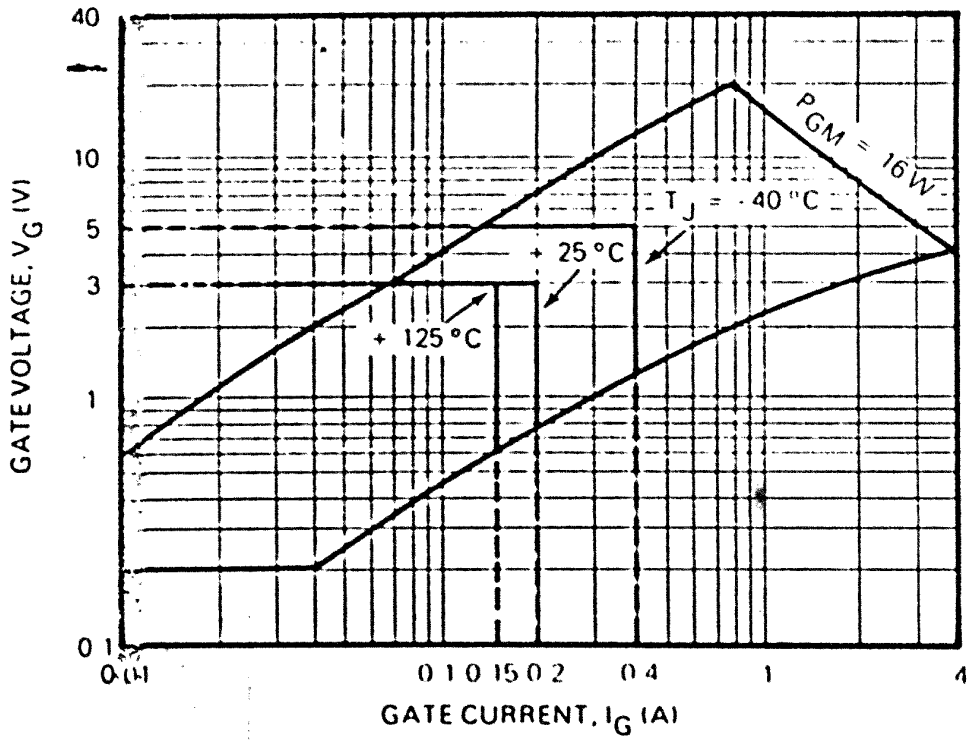
**MAXIMUM ON-STATE CONDUCTION CHARACTERISTIC**



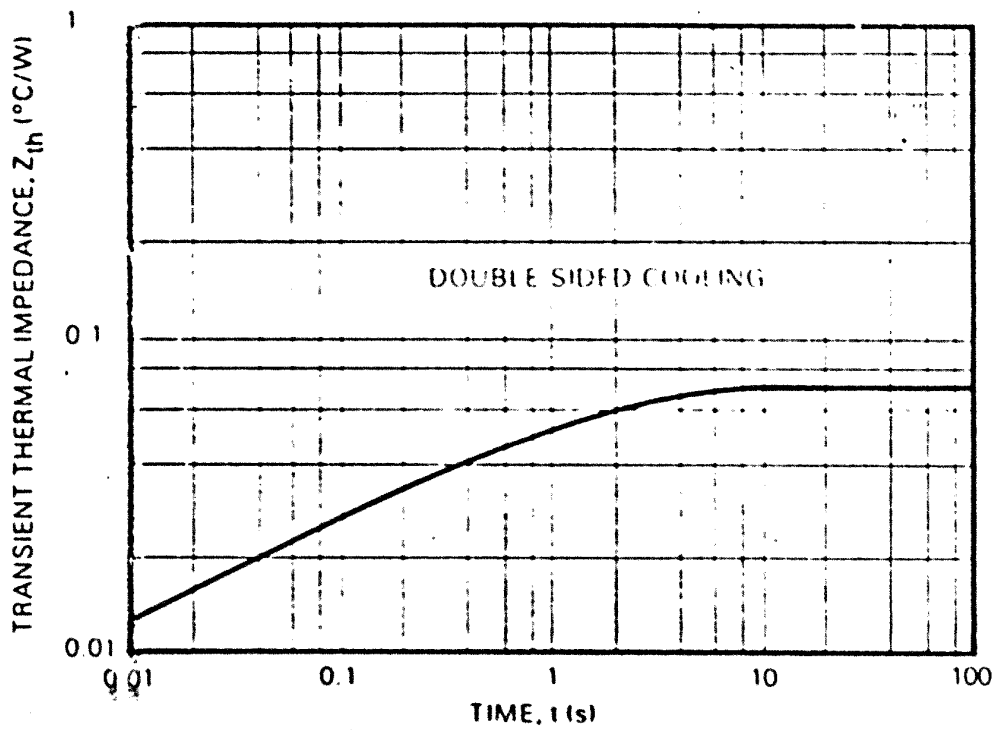
**NON REPETITIVE SUB-CYCLE SURGE ON-STATE CURRENT AND  $I^2t$  RATING**



**TYPICAL RECOVERED CHARGE**  
 (FOR A DEVICE RATED  $V_{DRM} = 1000\text{ V}$ ,  $t_q = 20\ \mu\text{s}$ )



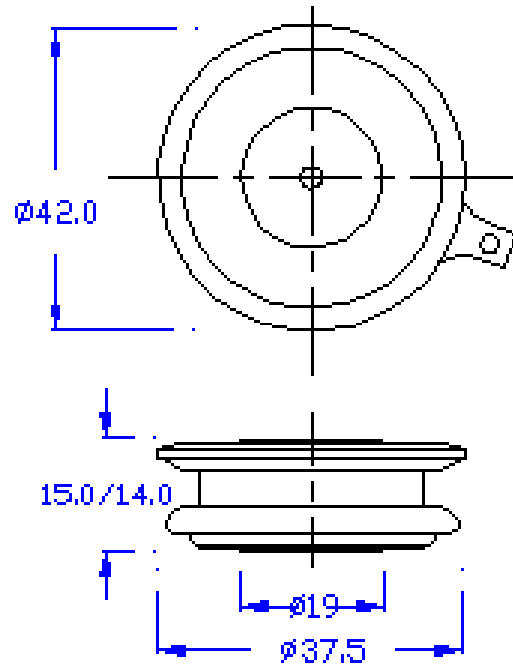
**GATE TRIGGER CHARACTERISTICS**



**TRANSIENT THERMAL IMPEDANCE JUNCTION TO CASE**

## PACKAGE DETAILS

DO NOT SCALE



Nominal Weight : 50g  
Clamping force : 5KN

Case Outline : T