

# Thyristors (Fast Switching) DCR1059



## Technical Data

Typical applications : UPS, Induction heating, A.C. Motors; etc.

Type No.	$V_{RRM}$ (Volts)	$V_{RSM}$ (Volts)
DCR1059/18	1700	1800
DCR1059/21	2000	2100

### Features

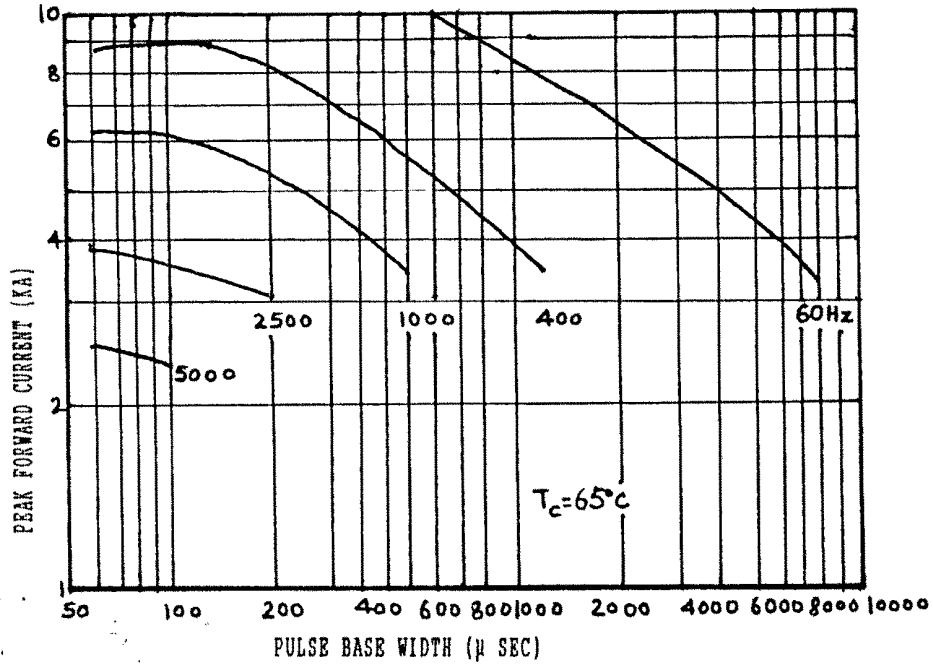
- Integrated Amplifying Gate.
- High di/dt & dv/dt Rating.

Symbol	Conditions	Values
$I_{T(AV)}$	50 Hz Half wave resistive load $T_C = 80^\circ\text{C}$	1080 A
$I_{RMS}$	RMS Value	1700 A
$R_{th(l-h)}$	Thermal resistance junction to heat sink surface	0.028 $^\circ\text{C/W}$
$I^2T$	Fusing at max $T_{vj}$ 10 ms half sine	1620000 $\text{A}^2\text{s}$
$I_{TSM}$	Surge current at max. $T_{vj}$ & 50% $V_{RRM}$ 10ms	18.0 KA
di/dt	Rate of rise of on state current	800 A/ $\mu\text{S}$
dv/dt	Rate of rise of on state voltage	*200V/ $\mu\text{S}$
$I_{RRM}/I_{DRM}$	$T_{vj} = 125^\circ\text{C}$	60 mA max
$T_{vj}$	Vertical junction temperature	125 $^\circ\text{C}$
$T_{STG}$	Storage temperature range	-40 to + 125 $^\circ\text{C}$
$V_{TM}$	$T_{vj} = 25^\circ\text{C}; I_{TM} = 1000\text{ A}$	1.45 V max
$Tq$	Turn off time $I_T = 1000\text{A}, V_R = 50\text{V}, 80\% V_{DRM}$ reapplied, dv/dt = 400 V/ $\mu\text{S}$	50 $\mu\text{S}$
$I_{GT}$	Gate trigger voltage $T_{vj} = 25^\circ\text{C}$	350 mA
$V_{GT}$	Gate trigger voltage $T_{vj} = 25^\circ\text{C}$	3.0V
Mounting Force		18-20 KN
Weight	Approx.	500 g
Case outline		F

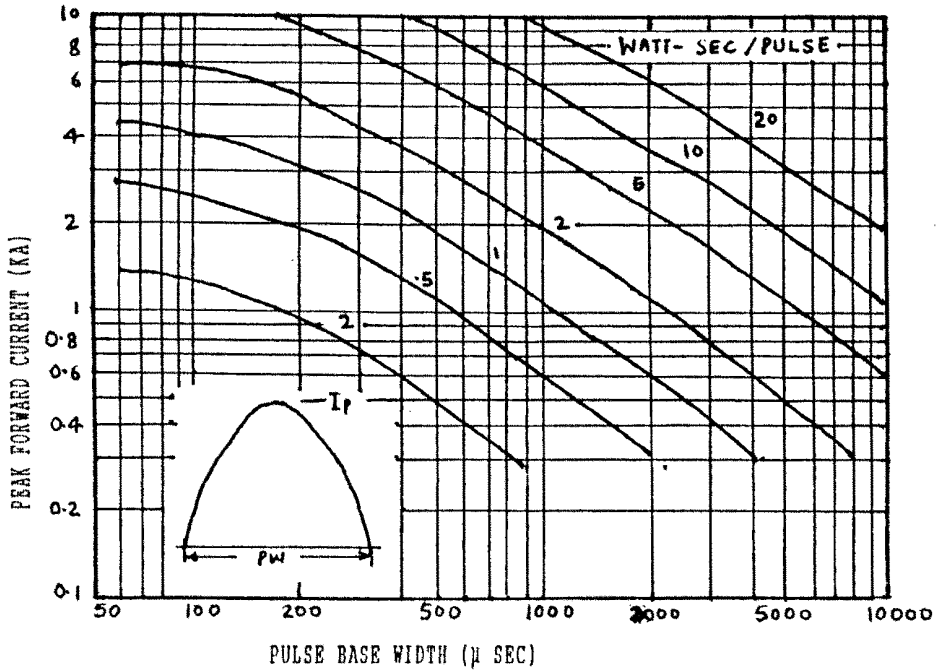
\* Higher dv/dt selection available.



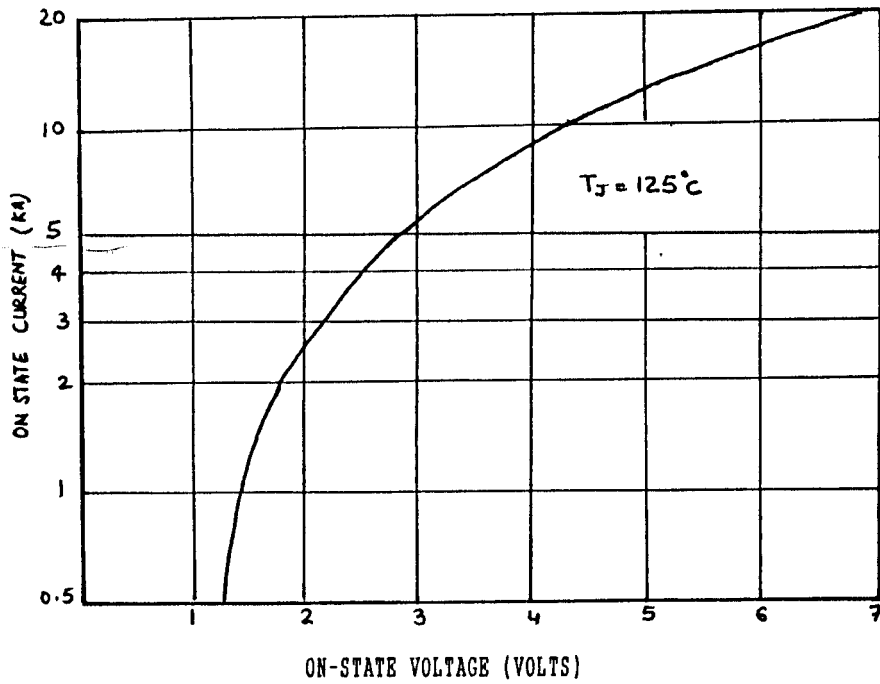
# SINUSOIDAL CURRENT WAVEFORMS



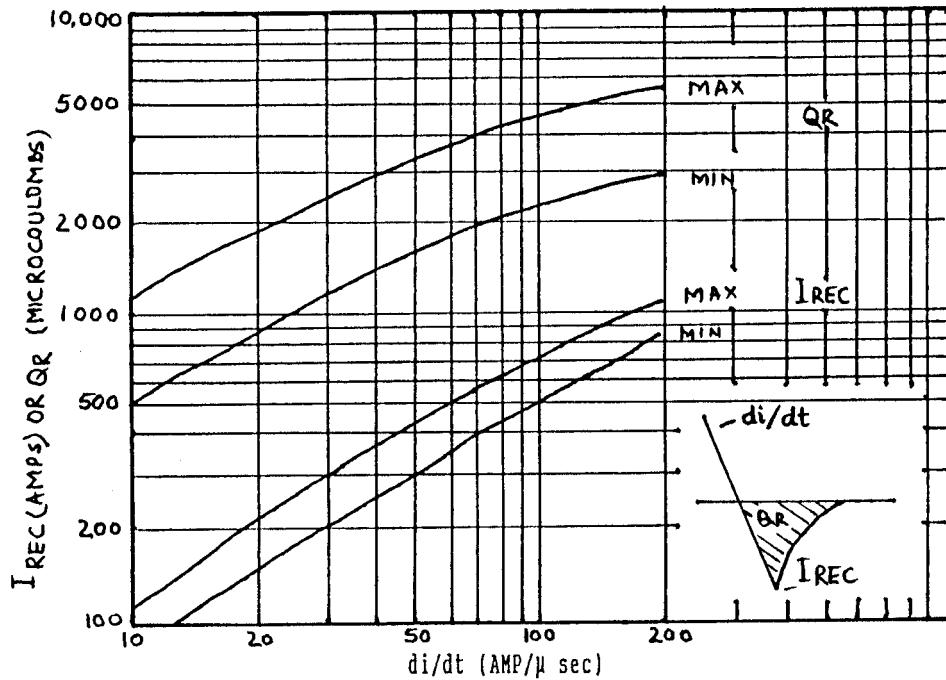
# MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT Vs. PULSE WIDTH ( $T_c = 65^\circ\text{C}$ )



# ENERGY PER PULSE FOR SINUSOIDAL PULSES

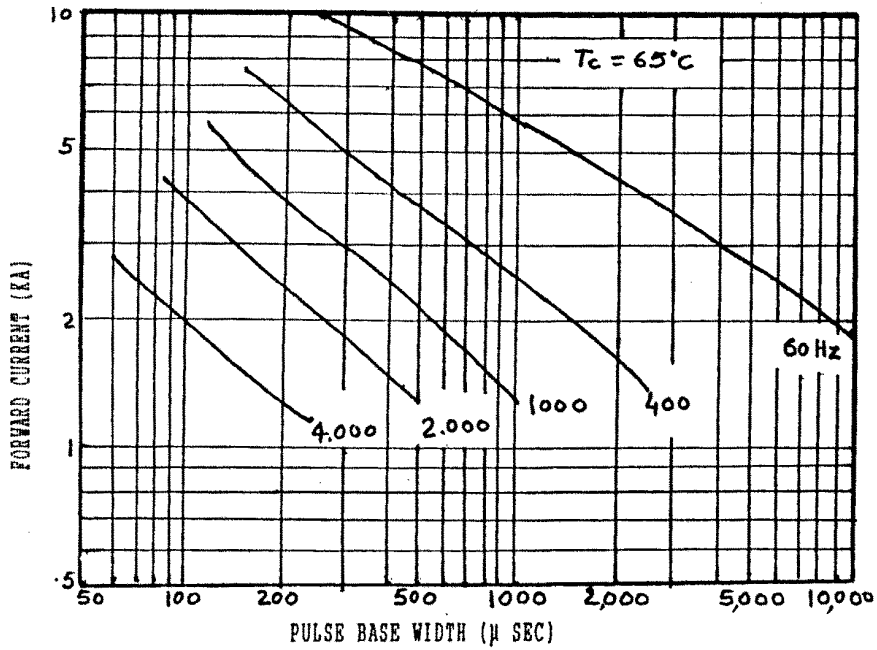


FORWARD CONDUCTION CHARACTERISTIC ON STATE

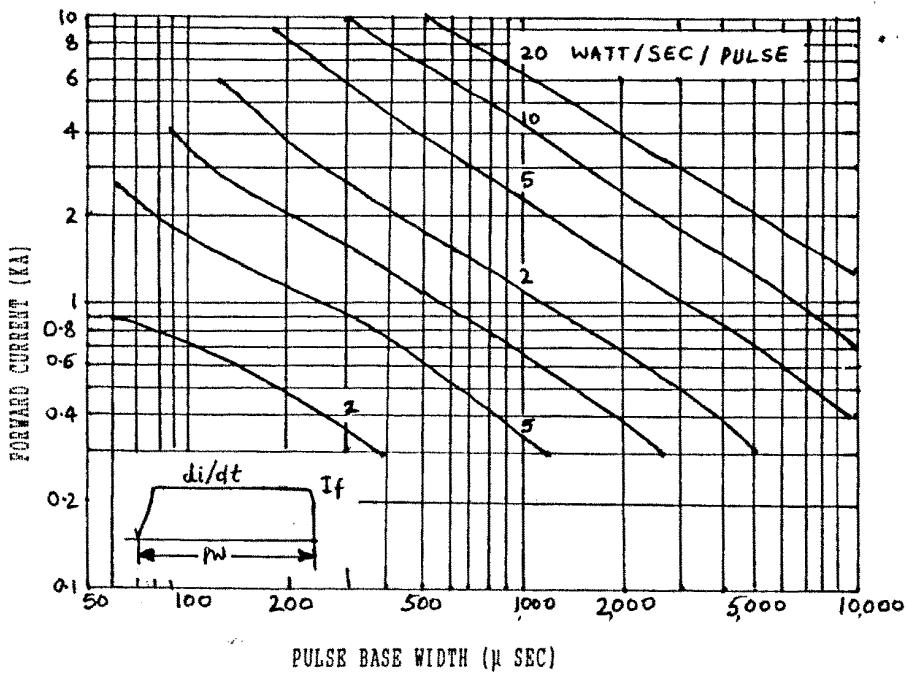


RECOVERED CHARGE (125°C)

# TRAPEZOIDAL CURRENT WAVEFORMS



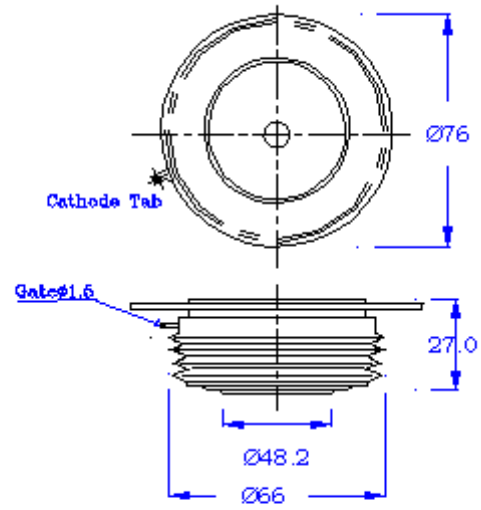
MAXIMUM ALLOWABLE PEAK ON-STATE CURRENT FOR TRAPEZOIDAL CURRENT WAVEFORMS FOR ( $T_c = 65^\circ\text{C}$ ) ( $di/dt = 100\text{A}/\mu\text{s}$ )



ENERGY PER PULSE FOR TRAPEZOIDAL CURRENT WAVEFORMS

## PACKAGE DETAILS

DO NOT SCALE



Nominal Weight : 500g  
Clamping force : 18-22KN

Case Outline : F