



**High Power
Button Capsule
Thyristor**

**DCR803 Series
DCR804 Series
IT(AV) = 900A
VRRM = 1700V**

Type Number		Non-Repetitive Peak Voltages V _{DSM} V _{RSM}		Repetitive Peak Voltages V _{DRM} V _{RRM}		OUTLINE M	OUTLINE G
DCR803SM1818	DCR804SM1818	1800		1700			
DCR803SM1717	DCR804SM1717	1700		1600			
DCR803SM1616	DCR804SM1616	1600		1500			
DCR803SM1515	DCR804SM1515	1500		1400			
DCR803SM1414	DCR804SM1414	1400		1300			
DCR803SM1313	DCR804SM1313	1300		1200			
DCR803SM1212	DCR804SM1212	1200		1100			
DCR803SM1111	DCR804SM1111	1100		1000			
DCR803SM1010	DCR804SM1010	1000		900			
DCR803SM0909	DCR804SM0909	900		800			
DCR803SM0808	DCR804SM0808	800		700			
DCR803SM0707	DCR804SM0707	700		600			
DCR803SM0606	DCR804SM0606	600		500			
DCR803SM0505	DCR804SM0505	500		400			
DCR803SM0404	DCR804SM0404	400		300			

During the life of this handbook devices may be supplied in Outline 'G' instead of 'M'. Type No. will have the 'M' changed to 'G'.

Weight	=	300g
Minimum clamping force	=	11.5kN
Maximum clamping force	=	13.5kN

CURRENT RATINGS — DOUBLE SIDE COOLED			
I _{T(AV)}	Mean on-state current	Half wave resistive load T _{HS} = 55°C	900 A
I _{RMS}	RMS value	T _{HS} = 55°C	1410 A
I _T	Continuous (direct) on-state current	T _{HS} = 55°C	1200 A
R _{th(j-h)}	Thermal resistance junction to heatsink surface	Clamping force 12.5kN (with mounting grease)	d.c. 0.040°C/W half-wave 0.042°C/W 3-phase 0.052°C/W
CURRENT RATINGS — SINGLE SIDE COOLED			
I _{T(AV)}	Mean on-state current	Half wave resistive load T _{HS} = 55°C	560 A
I _{RMS}	RMS value	T _{HS} = 55°C	880 A
I _T	Continuous (direct) on-state current	T _{HS} = 55°C	715 A
R _{th(j-h)}	Thermal resistance junction to heatsink surface	Clamping force 12.5kN (with mounting grease)	d.c. 0.080°C/W half-wave 0.082°C/W 3-phase 0.092°C/W
SURGE RATINGS			
I _{TRM}	Repetitive peak on-state current	Sinusoidal waveform conduction angle φ = 30° T _{HS} = 55°C	6000 A
I ² t	I ² t for fusing	10mS half sine T _j = 125°C	625000 A ² sec
I _{TSM}	Surge (non-repetitive) on-state current	3mS half sine T _j = 125°C	460000 A ² sec
di/dt	Rate of rise of on-state current	With 50% V _{RSM} T _j = 125°C	11200 A
dv/dt*	Max linear rate of rise of off-state voltage	From 67% V _{DRM} to 1000A, gate source 10V 5Ω, rise time 0.5μs, T _j = 125°C	100 A/μs
	*Higher values available.	Voltage 67% V _{DRM} , T _{case} = 125°C	300 V/μs
GATE RATINGS			
V _{FGM}	Peak forward gate voltage	Anode positive with respect to cathode	30 V
V _{FGN}	Peak forward gate voltage	Anode negative with respect to cathode	0.25 V
V _{FRM}	Peak reverse gate voltage		5 V
I _{FGM}	Peak forward gate current	Anode positive with respect to cathode	10 A
P _{GM}	Peak gate power	Pulse width = 100μs	150 W
P _G	Mean gate power		10 W
TEMPERATURE & FREQUENCY RATINGS			
T _{vj}	Virtual junction temperature	On-state (conduction)	135°C
T _{sig}	Storage temperature range	Off-state (blocking)	125°C
f	Frequency range		-55 to 125°C 10 to 400 Hz

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45 Davids Drive
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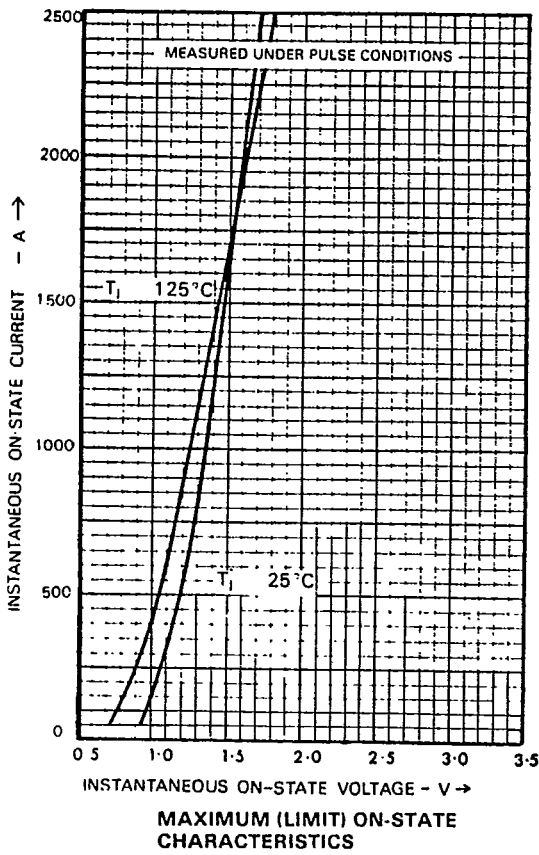


CHARACTERISTICS — $T_{case} = 25^\circ C$ unless otherwise stated

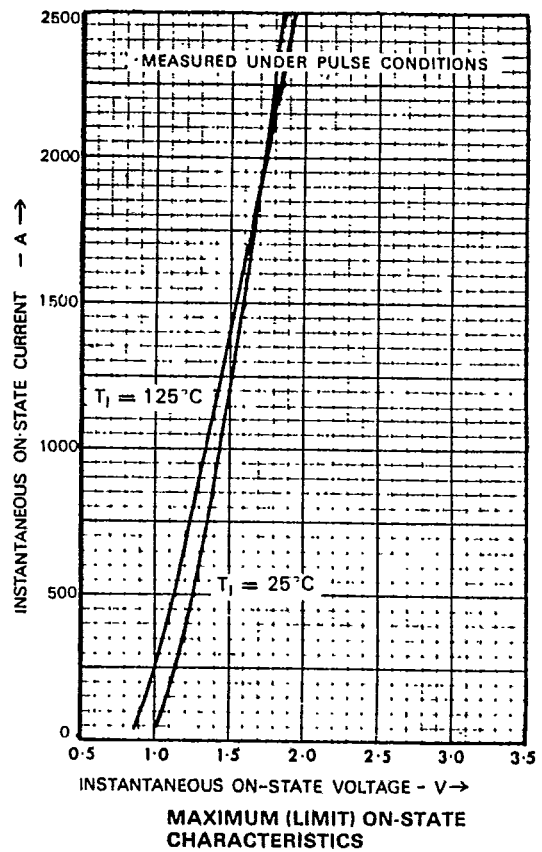
V_{TM}	On-state voltage	At 1600 Amps peak	DCR 803
I_{DM}	Peak off-state current	$T_{case} = 125^\circ C$	DCR 804
I_{RM}	Peak reverse current	$T_{case} = 125^\circ C$	
I_L	Latching current	$V_D = 5V$ $T_p = 30\mu S$	
I_H	Holding current	$V_D = 5V$ Gate open circuit	
t_d	Delay time	$V_D = 100V$, Gate source = 25V 5Ω	
t_q	Circuit commutated turn-off time	$I_T = 600A$, $V_{RM} = 50V$, $dI_{RR}/dt = 20A/\mu s$, $V_{DR} = 67\% V_{DRM}$, $dV_{DR}/dt = 20V/\mu s$ linear, $T_{case} = 125^\circ C$	
V_{GT}	Gate trigger voltage	$V_{DRM} = 5V$	
V_{GD}	Gate non-trigger voltage	At V_{DRM} , $T_{case} = 125^\circ C$	
I_{GT}	Gate trigger current	$V_{DRM} = 5V$	

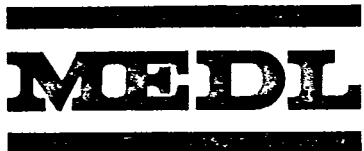
LIMIT				
5%	Typ	95%	Max	Units
			1.5	V
			1.625	V
			50	mA
	100		50	mA
	80			mA
0.23	0.35	0.55		μs
132	166	190		μs
	1.0		3.5	V
			0.25	V
			200	mA

DCR803



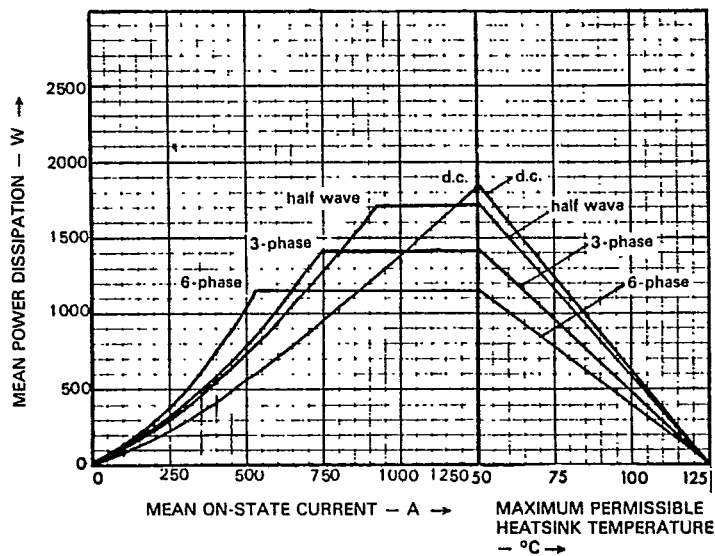
DCR804



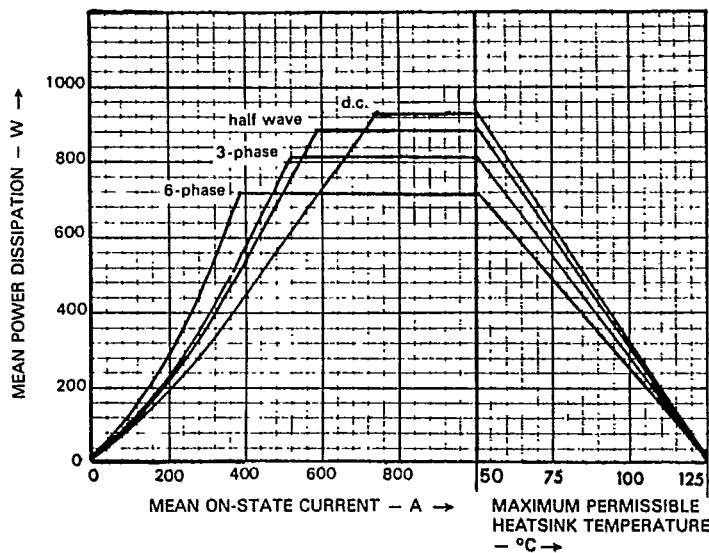


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T-25-20



DISSIPATION CURVES:
DOUBLE SIDE COOLED



DISSIPATION CURVES:
SINGLE SIDE COOLED

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MEDL

