



High Power Button Capsule Thyristor

DCR806 Series
DCR807 Series
IT(AV) = 775A
VRRM = 2900V

Type Number		Non-Repetitive Peak Voltages V _{DSM} V _{VRSM}		Repetitive Peak Voltages V _{DRM} V _{VRRM}		OUTLINE M	OUTLINE G
DCR806SM3030	DCR807SM3030	3000		2900			
DCR806SM2929	DCR807SM2929	2900		2800			
DCR806SM2828	DCR807SM2828	2800		2700			
DCR806SM2727	DCR807SM2727	2700		2600			
DCR806SM2626	DCR807SM2626	2600		2500			
DCR806SM2525	DCR807SM2525	2500		2400			
DCR806SM2424	DCR807SM2424	2400		2300			
DCR806SM2323	DCR807SM2323	2300		2200			
DCR806SM2222	DCR807SM2222	2200		2100			
DCR806SM2121	DCR807SM2121	2100		2000			
DCR806SM2020	DCR807SM2020	2000		1900			
DCR806SM1919	DCR807SM1919	1900		1800			
DCR806SM1818	DCR807SM1818	1800		1700			
DCR806SM1717	DCR807SM1717	1700		1600			

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'.

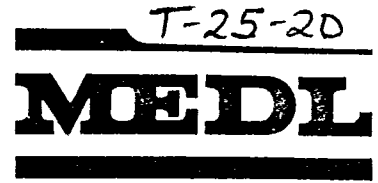
Weight	=	300g
Minimum clamping force	=	11.5kN
Maximum clamping force	=	13.5kN

CURRENT RATINGS – DOUBLE SIDE COOLED		Half wave resistive load T _{case} = 55°C	775 A
I _{T(AV)}	Mean on-state current	T _{case} = 55°C	1220 A
I _{RMS}	RMS value	T _{case} = 55°C	1050 A
I _T	Continuous (direct) on-state current	Clamping force 12kN	d.c. 0.040°C/W
R _{th(j-h)}	Thermal resistance junction to heatsink surface	(with mounting grease)	half-wave 0.042°C/W
			3-phase 0.052°C/W
CURRENT RATINGS – SINGLE SIDE COOLED		Half-wave resistive load T _{case} = 55°C	500 A
I _{T(AV)}	Mean on-state current	T _{case} = 55°C	785 A
I _{RMS}	RMS value	T _{case} = 55°C	620 A
I _T	Continuous (direct) on-state current	Clamping force 12kN	d.c. 0.080°C/W
R _{th(j-h)}	Thermal resistance junction to heatsink surface	(with mounting grease)	half-wave 0.082°C/W
			3-phase 0.092°C/W
SURGE RATINGS		Sinusoidal waveform conduction angle	4000 A
I _{TRM}	Repetitive peak on-state current	φ = 30° T _{case} = 55°C	
I ² t	I ² t for fusing	10mS half sine T _j = 125°C	405000 A ² sec
I _{TSM}	Surge (non-repetitive) on-state current	3mS half sine T _j = 125°C	315000 A ² sec
dI _T /dt	Rate of rise of on-state current	With 50% V _{VRSM} T _j = 125°C	9000 A
		From 67% V _{DRM} to 1000A, gate source	100 A/μs
dv/dt	Max linear rate of rise of off-state voltage	10V 5Ω, rise time 0.5μs, T _j = 125°C	
		Voltage 67% V _{DRM} T _{case} = 125°C	300 V/μs
GATE RATINGS		Anode positive with respect to cathode	30 V
V _{FGM}	Peak forward gate voltage	Anode negative with respect to cathode	0.25 V
V _{FGN}	Peak forward gate voltage		5 V
V _{RGM}	Peak reverse gate voltage	Anode positive with respect to cathode	10 A
I _{FGM}	Peak forward gate current	Pulse width = 100μS	150 W
P _{GM}	Peak gate power		10 W
P _G	Mean gate power		
TEMPERATURE & FREQUENCY RATINGS		On-state (conduction)	135°C
T _{vj}	Virtual junction temperature	Off-state (blocking)	125°C
T _{sig}	Storage temperature range		-55 to 125°C
f	Frequency range		10 to 400 Hz

Marconi Electronic Devices, Inc
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Hauppauge, New York 11788
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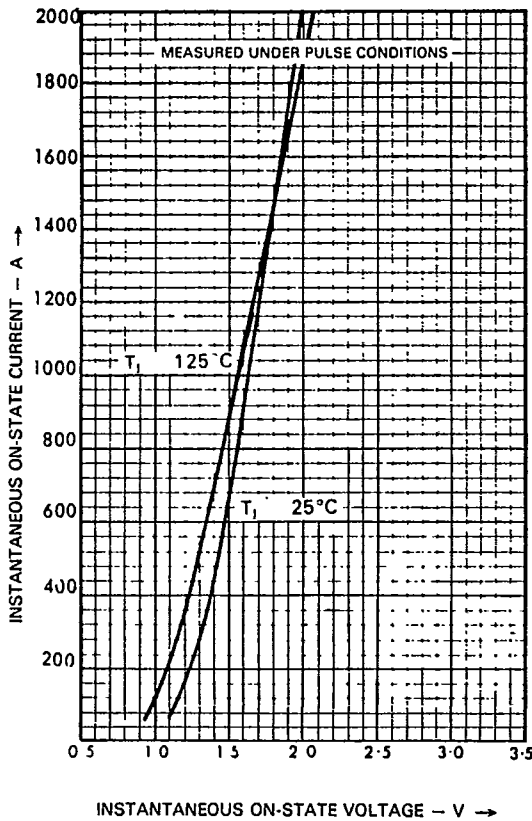


CHARACTERISTICS - $T_{case} = 25^{\circ}C$ unless otherwise stated

V_{TM}	On-state voltage	At 1600 Amps peak	DCR806
			DCR807
I_{DM}	Peak off-state current	$T_{case} = 125^{\circ}C$	
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	$I_T = 600A$, $V_{RM} = 50V$, $dI_{RR}/dt = 20 A/\mu s$ $V_{DR} = 67\% V_{DRM}$, $dV_{DR}/dt = 20V/\mu s$ 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	$V_{DRM} = 5V$	

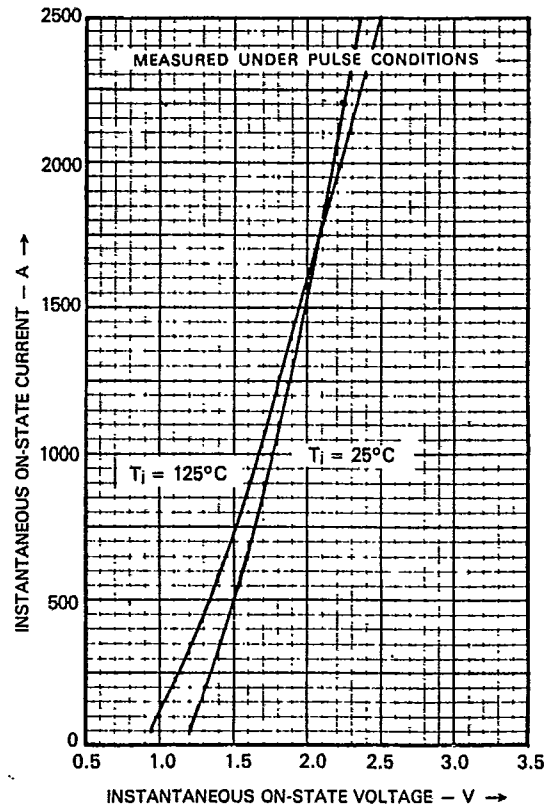
LIMIT				
5%	Typ	95%	Max	Units
			1.875	V
			2.0	V
			50	mA
			50	mA
0.23	100			mA
	80			mA
	0.40	0.72		μs
		220		μs
	1.0		3.5	V
			0.25	V
			200	mA

DCR806



MAXIMUM (LIMIT) ON-STATE CHARACTERISTICS

DCR807

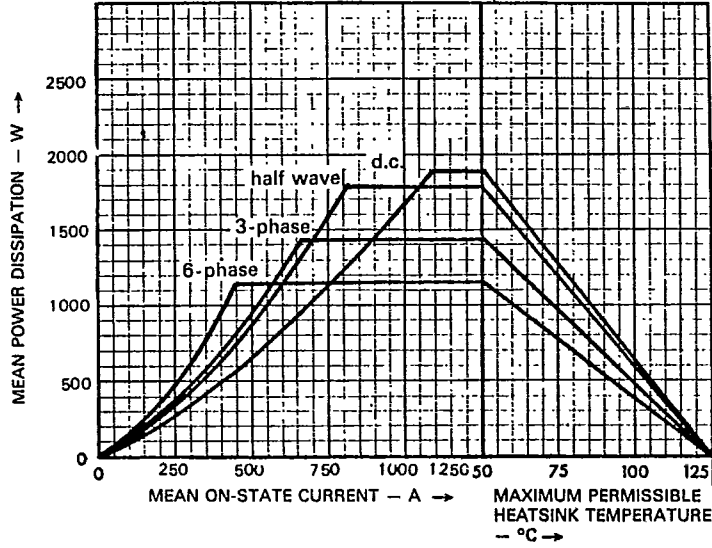


MAXIMUM (LIMIT) ON-STATE CHARACTERISTICS

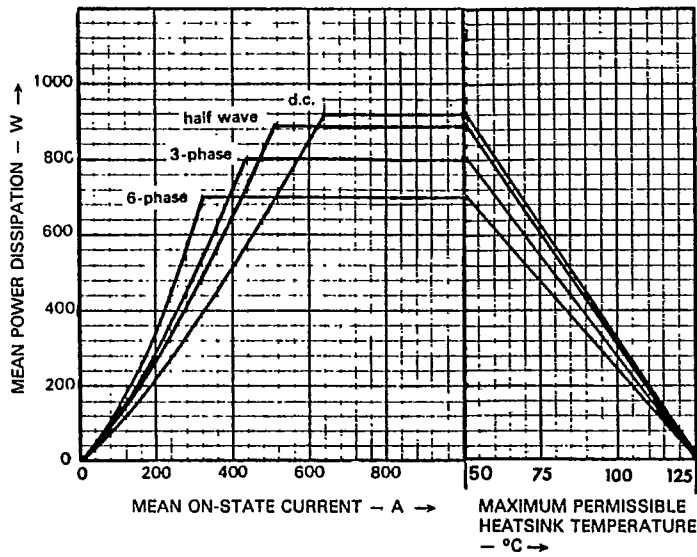


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T-25-20

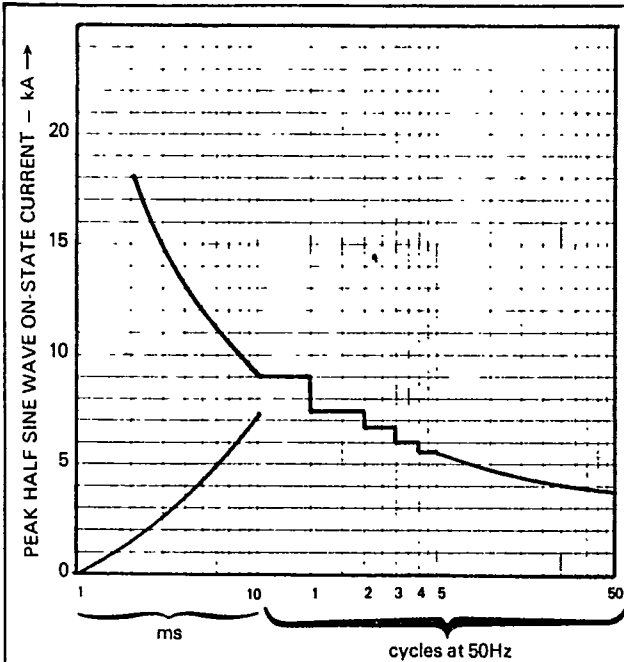
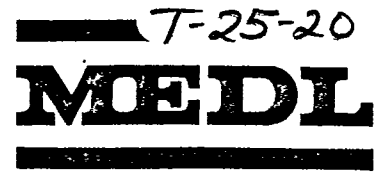


DISSIPATION CURVES:
DOUBLE SIDE COOLED



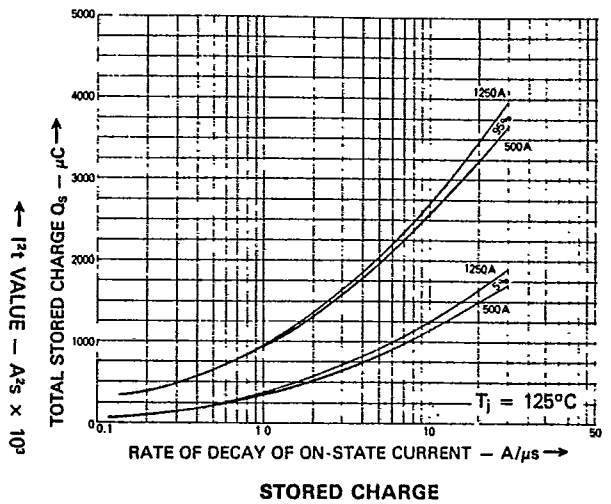
DISSIPATION CURVES:
SINGLE SIDE COOLED

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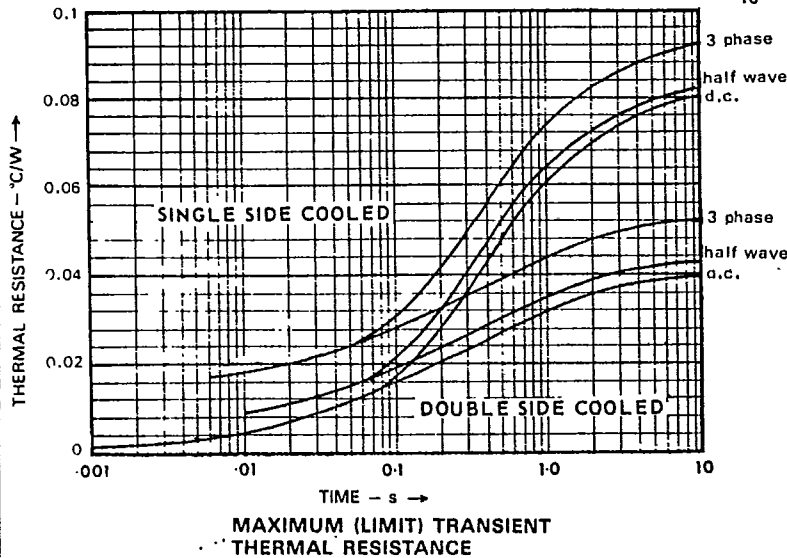
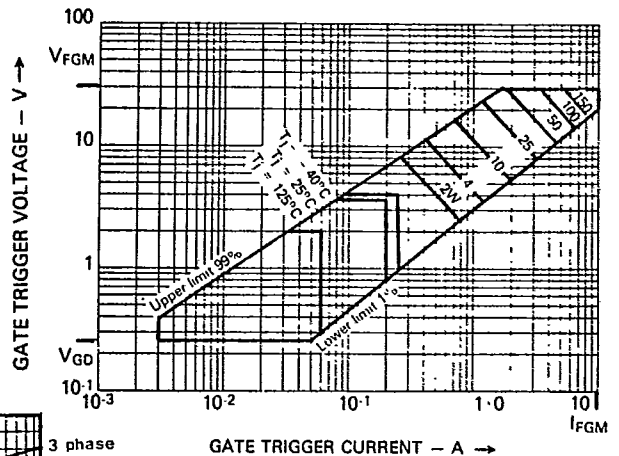


DURATION
 SURGE (NON-REPETITIVE) ON-STATE CURRENT
 VERSUS TIME (with 50% V_{RSM} $T_{case} 125^{\circ}C$)

$$I^2t = \frac{I^2 \times t}{2}$$



STORED CHARGE



MAXIMUM (LIMIT) TRANSIENT
 THERMAL RESISTANCE

Pulse Width μs	Pulse Frequency Hz		
	50	100	400
100	150	150	150
200	150	150	125
500	150	150	100
1mS	150	100	25
10mS	20	10	2.5

TABLE GIVES GATE PULSE POWER P_{GM} IN WATTS
 GATE CHARACTERISTICS

H