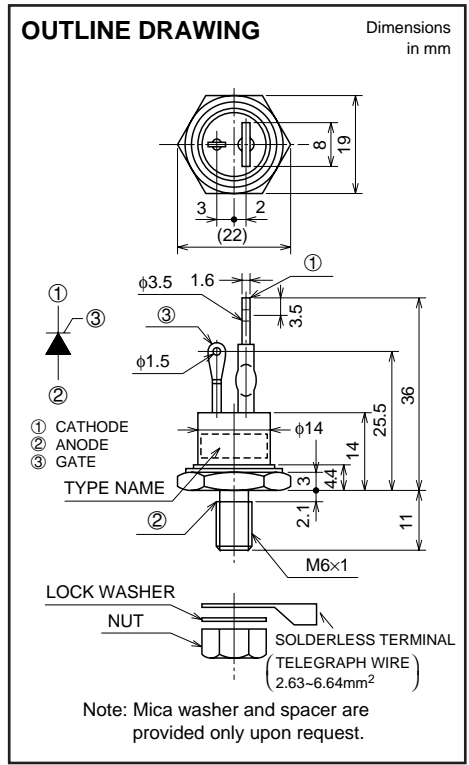


CR20EY

MEDIUM POWER, INVERTER USE
NON-INSULATED TYPE, GLASS PASSIVATION TYPE



APPLICATION

Inverter, DC choppers, pulse generator

MAXIMUM RATINGS

Symbol	Parameter	Voltage class			Unit
		8	12	16	
VRRM	Repetitive peak reverse voltage	400	600	800	V
VRSM	Non-repetitive peak reverse voltage	480	720	850	V
VDRM	Repetitive peak off-state voltage	400	600	800	V
VDSM	Non-repetitive peak off-state voltage	480	720	800	V

Symbol	Parameter	Conditions	Ratings	Unit
I_T (RMS)	RMS on-state current		31.5	A
I_T (AV)	Average on-state current	Commercial frequency, sine half wave, 180° conduction, $T_c=74^\circ\text{C}$	20	A
I_{TSM}	Surge on-state current	60Hz sine half wave 1 full cycle, peak value, non-repetitive	300	A
I^2t	I^2t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	380	A ² s
di/dt	Critical rate of rise of on-state current	$V_D=1/2V_{DRM}$, $I_{TM}=60\text{A}$, $I_G=0.1\text{A}$, $T_j=25^\circ\text{C}$, $f=60\text{Hz}$	100	A/ μs
PGM	Peak gate power dissipation		5.0	W
PG (AV)	Average gate power dissipation		0.5	W
VFGM	Peak gate forward voltage		10	V
VRGM	Peak gate reverse voltage		5	V
IFGM	Peak gate forward current		2	A
T_j	Junction temperature		-30 ~ +125	°C
T_{stg}	Storage temperature		-30 ~ +125	°C
—	Mounting torque		30	kg-cm
			2.94	N-m
—	Weight	Typical value	20	g

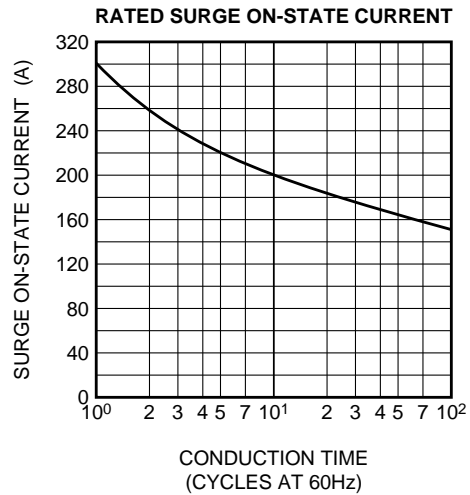
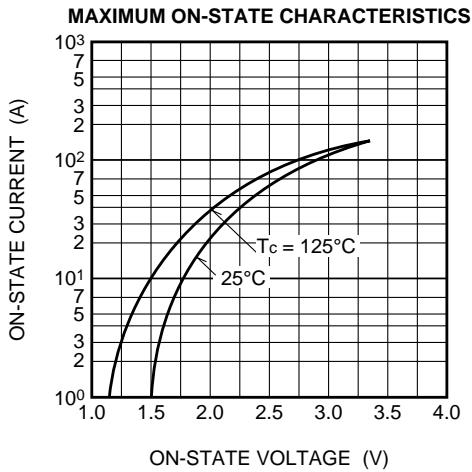
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MEDIUM POWER, INVERTER USE
NON-INSULATED TYPE, GLASS PASSIVATION TYPE

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I _{RRM}	Repetitive peak reverse current	T _j =125°C, V _{RRM} applied	—	—	6.0	mA
I _{DRM}	Repetitive peak off-state current	T _j =125°C, V _{DRM} applied	—	—	6.0	mA
V _{TM}	On-state voltage	T _c =25°C, I _{TM} =60A, Instantaneous value	—	—	2.5	V
dv/dt	Critical rate of rise of off-state voltage	T _j =125°C, V _D =2/3V _{DRM}	100	—	—	V/μs
V _{GT}	Gate trigger voltage	T _j =25°C, V _D =6V, I _T =0.5A	—	—	3.0	V
V _{GD}	Gate non-trigger voltage	T _j =125°C, V _D =1/2V _{DRM}	0.25	—	—	V
I _{GT}	Gate trigger current	T _j =25°C, V _D =6V, I _T =0.5A	—	—	50	mA
t _{gt}	Turn-on time	T _j =25°C, V _D =100V, I _T =15A, I _G =0.1A	—	—	10	μs
t _q	Turn-off time	I _T =20A, V _R =50V, V _D =1/2V _{DRM} , T _j =125°C, dv/dt=20V/μs	—	—	15	μs
R _{th(j-c)}	Thermal resistance	Junction to case	—	—	1.0	°C/W
R _{th(c-f)}	Contact thermal resistance	Case to fin, greased	—	—	0.40	°C/W

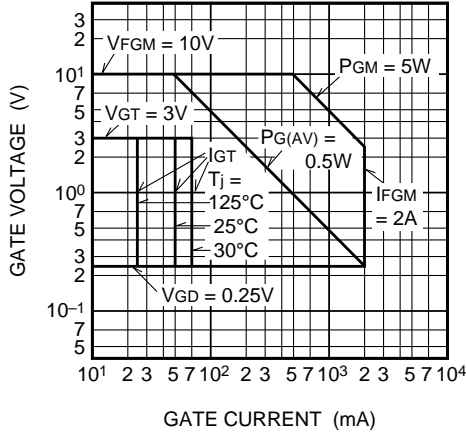
PERFORMANCE CURVES



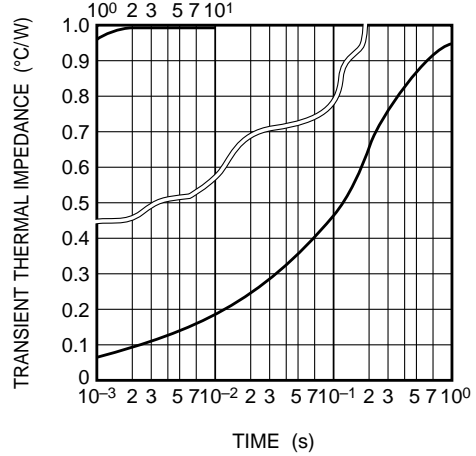
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MEDIUM POWER, INVERTER USE
NON-INSULATED TYPE, GLASS PASSIVATION TYPE

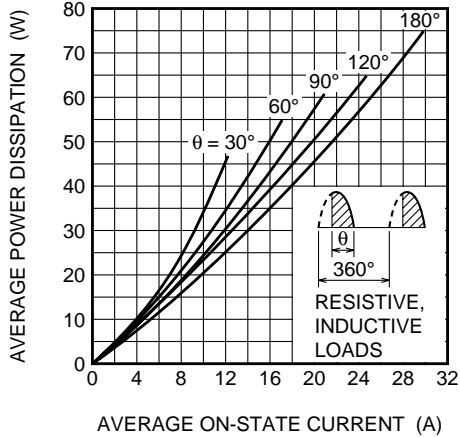
GATE CHARACTERISTICS



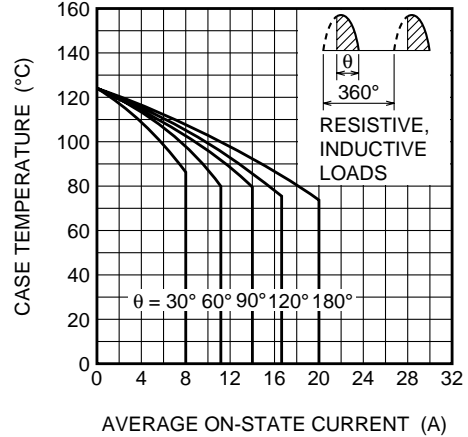
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



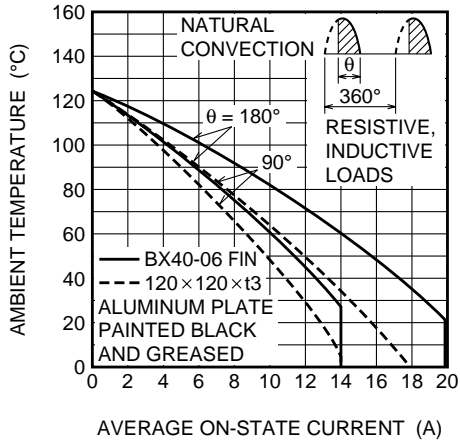
MAXIMUM AVERAGE POWER DISSIPATION (SINGLE-PHASE HALF WAVE)



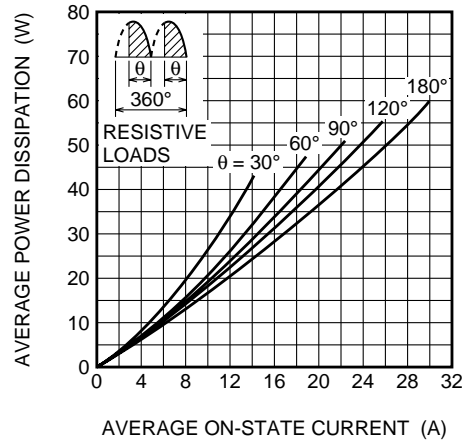
ALLOWABLE CASE TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE HALF WAVE)



ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE HALF WAVE)



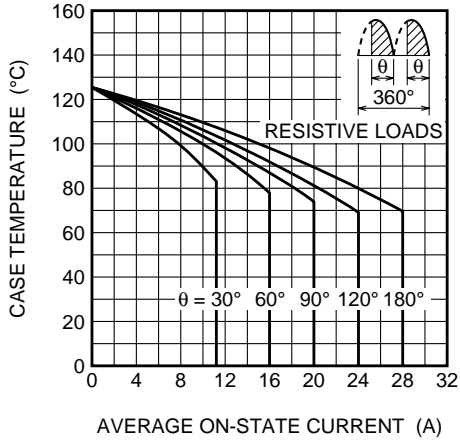
MAXIMUM AVERAGE POWER DISSIPATION (SINGLE-PHASE FULL WAVE)



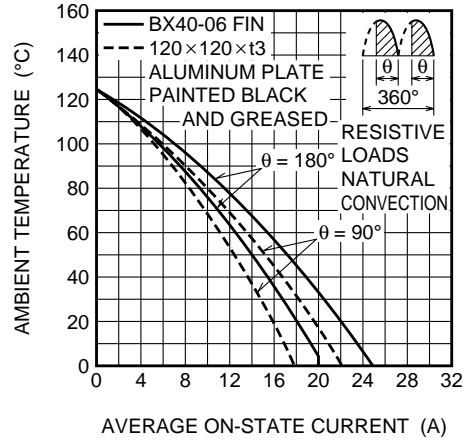
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MEDIUM POWER, INVERTER USE
NON-INSULATED TYPE, GLASS PASSIVATION TYPE

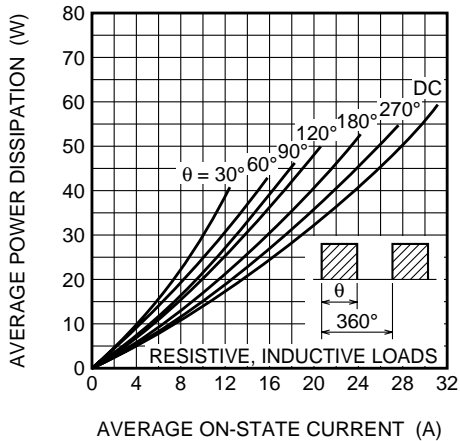
ALLOWABLE CASE TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE FULL WAVE)



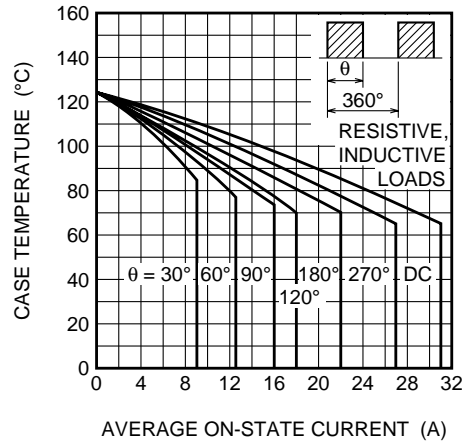
ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE FULL WAVE)



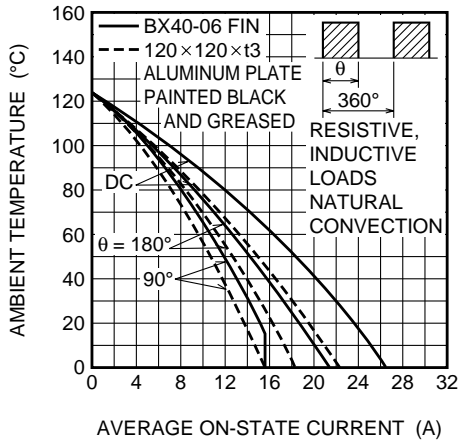
MAXIMUM AVERAGE POWER DISSIPATION (RECTANGULAR WAVE)



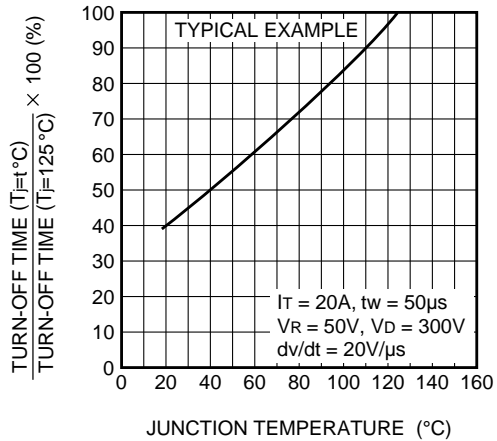
ALLOWABLE CASE TEMPERATURE VS. AVERAGE ON-STATE CURRENT (RECTANGULAR WAVE)



ALLOWABLE AMBIENT TEMPERATURE VS. AVERAGE ON-STATE CURRENT (RECTANGULAR WAVE)

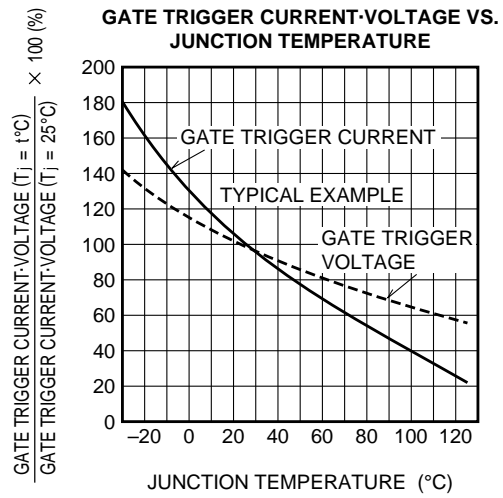
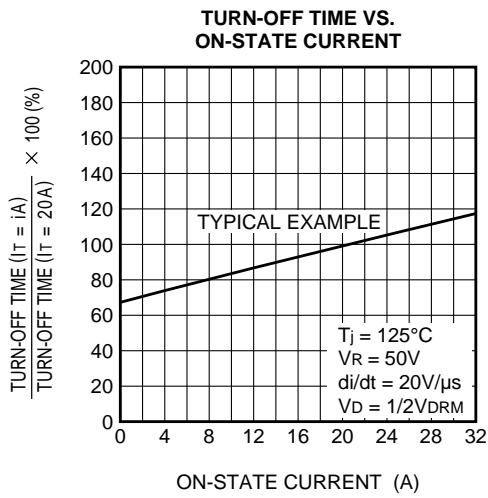


TURN-OFF TIME VS. JUNCTION TEMPERATURE



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MEDIUM POWER, INVERTER USE
NON-INSULATED TYPE, GLASS PASSIVATION TYPE





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