


CR6PM

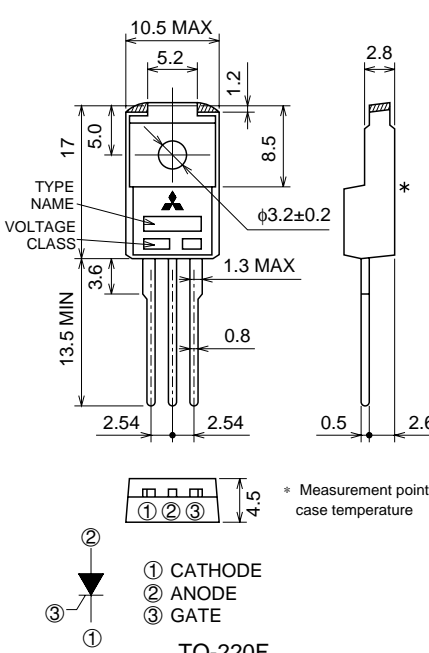
MEDIUM POWER USE
INSULATED TYPE, GLASS PASSIVATION TYPE

CR6PM



- I_T (AV) 6A
- V_{DRM} 400V/600V
- I_{GT} 10mA
- V_{iso} 1500V
- UL Recognized: File No. E80276

OUTLINE DRAWING Dimensions in mm



① CATHODE
② ANODE
③ GATE

TO-220F

* Measurement point of case temperature

APPLICATION

Switching mode power supply, ECR, regulator for auticycle, motor control

MAXIMUM RATINGS (Ta=25°C, unless otherwise noted)

Symbol	Parameter	Voltage class		Unit
		8	12	
VRRM	Repetitive peak reverse voltage	400	600	V
VRSM	Non-repetitive peak reverse voltage	500	720	V
VR (DC)	DC reverse voltage	320	480	V
VDRM	Repetitive peak off-state voltage	400	600	V
VD (DC)	DC off-state voltage	320	480	V

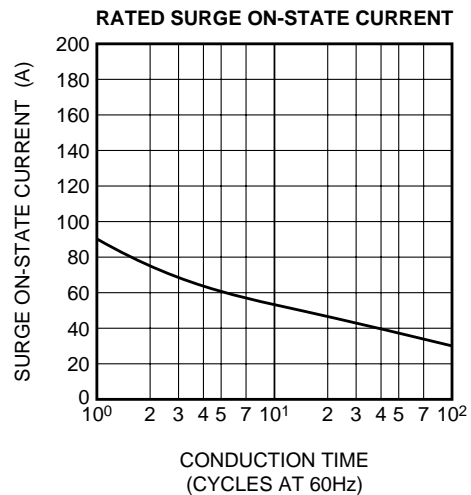
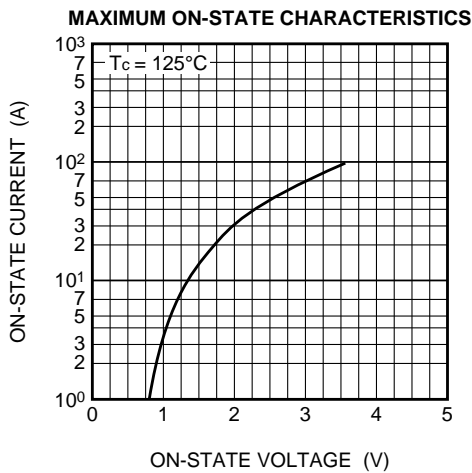
Symbol	Parameter	Conditions	Ratings	Unit
I_T (RMS)	RMS on-state current		9.4	A
I_T (AV)	Average on-state current	Commercial frequency, sine half wave, 180° conduction, Tc=85°C	6	A
I_{TSM}	Surge on-state current	60Hz sine half wave 1 full cycle, peak value, non-repetitive	90	A
I^2t	I^2t for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	34	A ² s
PGM	Peak gate power dissipation		5	W
PG (AV)	Average gate power dissipation		0.5	W
VFGM	Peak gate forward voltage		6	V
VRGM	Peak gate reverse voltage		10	V
IFGM	Peak gate forward current		2	A
Tj	Junction temperature		-40 ~ +125	°C
Tstg	Storage temperature		-40 ~ +125	°C
—	Weight	Typical value	2.0	g
Viso	Isolation voltage	Ta=25°C, AC 1 minute, each terminal to case	1500	V

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
IRRM	Repetitive peak reverse current	$T_j=125^\circ\text{C}$, V_{RRM} applied	—	—	2.0	mA
IDRM	Repetitive peak off-state current	$T_j=125^\circ\text{C}$, V_{DRM} applied	—	—	2.0	mA
V _{TM}	On-state voltage	$T_c=25^\circ\text{C}$, $I_{TM}=20\text{A}$, Instantaneous value	—	—	1.7	V
V _{GT}	Gate trigger voltage	$T_j=25^\circ\text{C}$, $V_D=6\text{V}$, $I_T=1\text{A}$	—	—	1.0	V
V _{GD}	Gate non-trigger voltage	$T_j=125^\circ\text{C}$, $V_D=1/2V_{DRM}$	0.2	—	—	V
I _{GT}	Gate trigger current	$T_j=25^\circ\text{C}$, $V_D=6\text{V}$, $I_T=1\text{A}$	—	—	10	mA
I _H	Holding current	$T_j=25^\circ\text{C}$, $V_D=12\text{V}$	—	15	—	mA
R _{th(j-c)}	Thermal resistance	Junction to case *1	—	—	4.0	$^\circ\text{C/W}$

*1. The contact thermal resistance R_{th(j-c)} is 0.5 $^\circ\text{C/W}$ with greased.

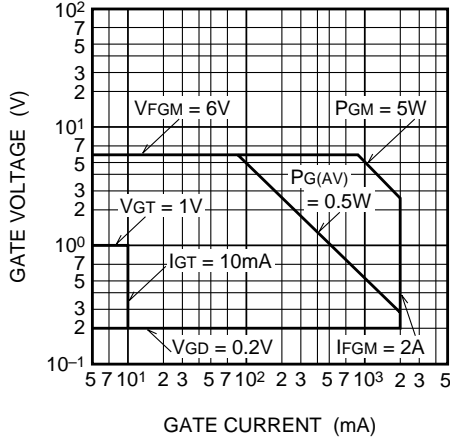
PERFORMANCE CURVES



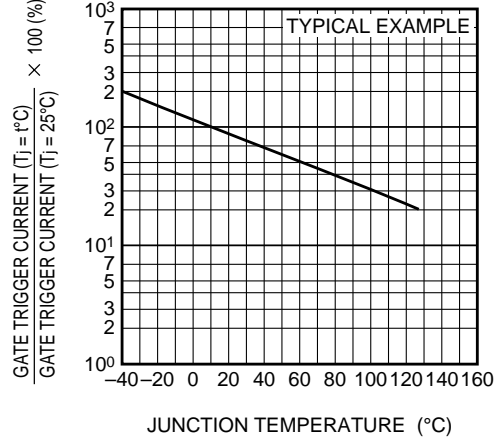
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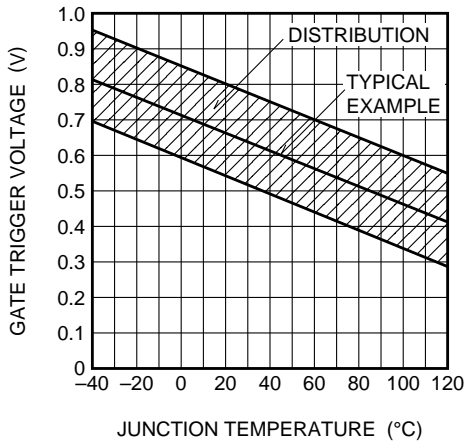
GATE CHARACTERISTICS



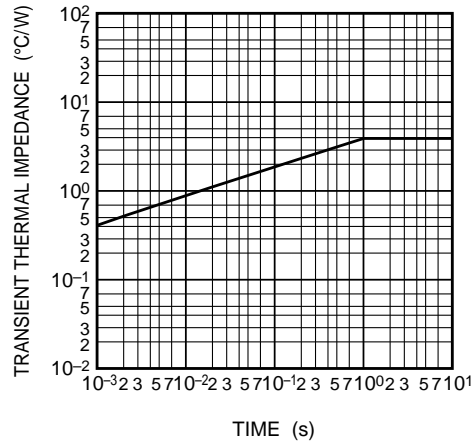
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE



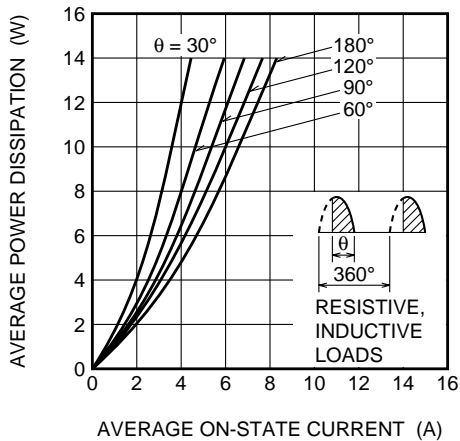
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE



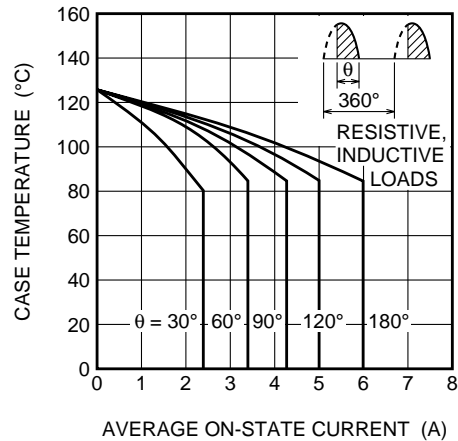
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS (JUNCTION TO CASE)



MAXIMUM AVERAGE POWER DISSIPATION (SINGLE-PHASE HALF WAVE)



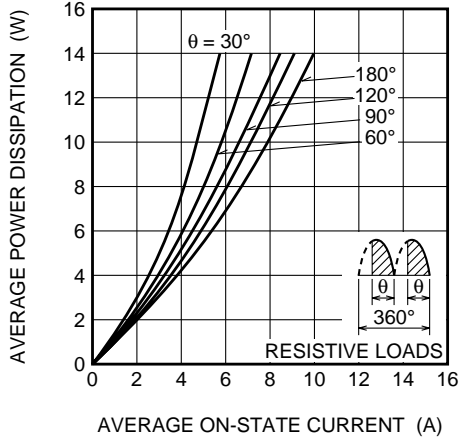
ALLOWABLE CASE TEMPERATURE VS. AVERAGE ON-STATE CURRENT (SINGLE-PHASE HALF WAVE)



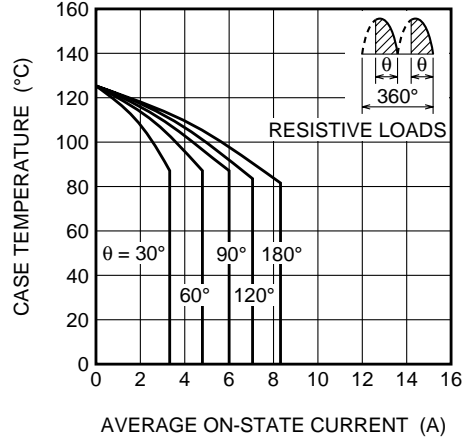
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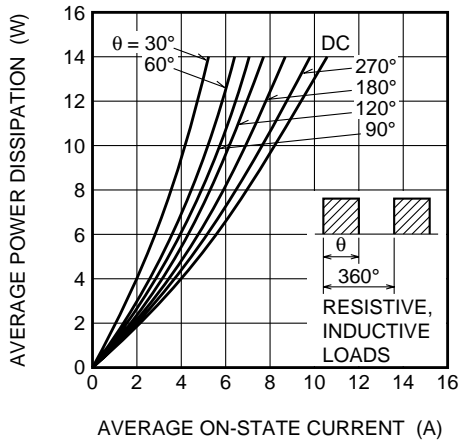
**MAXIMUM AVERAGE POWER DISSIPATION
(SINGLE-PHASE FULL WAVE)**



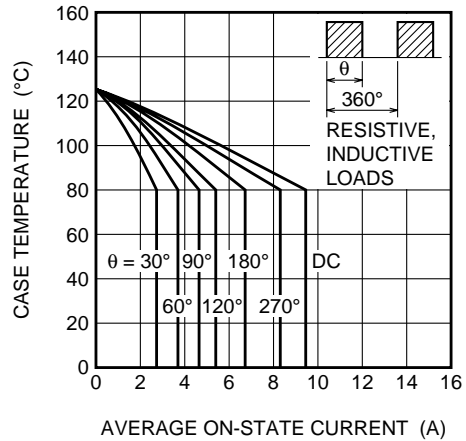
**ALLOWABLE CASE TEMPERATURE VS.
AVERAGE ON-STATE CURRENT
(SINGLE-PHASE FULL WAVE)**



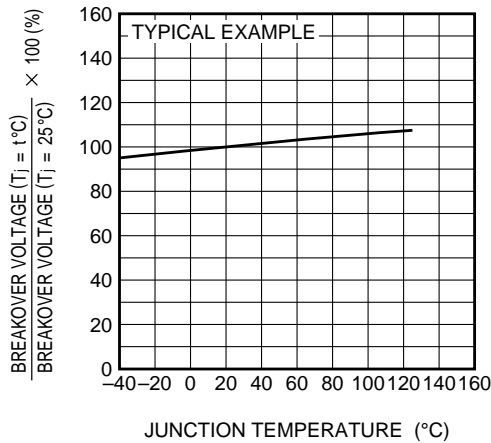
**MAXIMUM AVERAGE POWER DISSIPATION
(RECTANGULAR WAVE)**



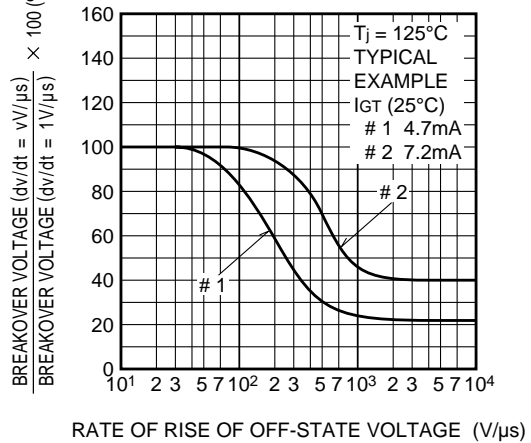
**ALLOWABLE CASE TEMPERATURE VS.
AVERAGE ON-STATE CURRENT
(RECTANGULAR WAVE)**



**BREAKOVER VOLTAGE VS.
JUNCTION TEMPERATURE**



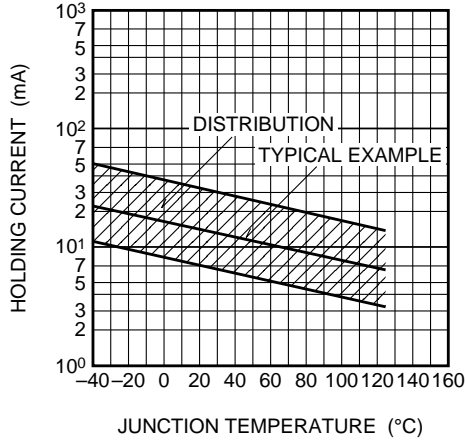
**BREAKOVER VOLTAGE VS.
RATE OF RISE OF OFF-STATE VOLTAGE**



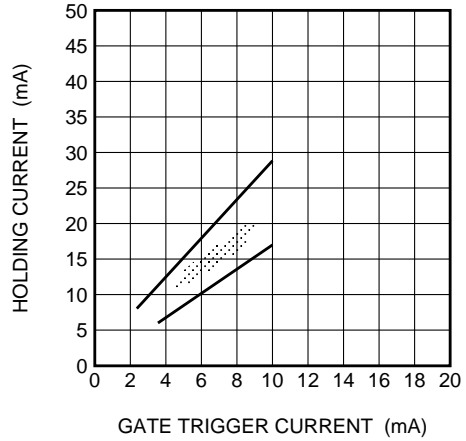
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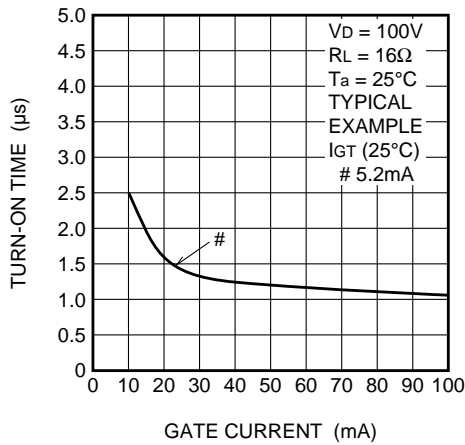
HOLDING CURRENT VS. JUNCTION TEMPERATURE



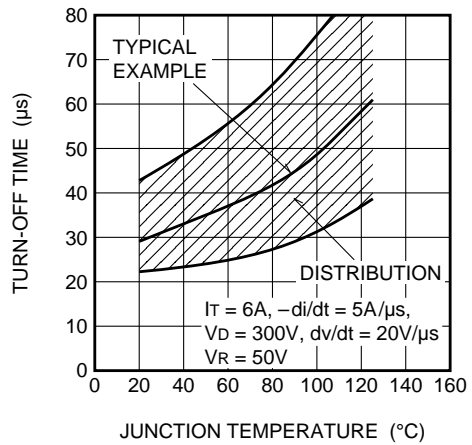
HOLDING CURRENT VS. GATE TRIGGER CURRENT



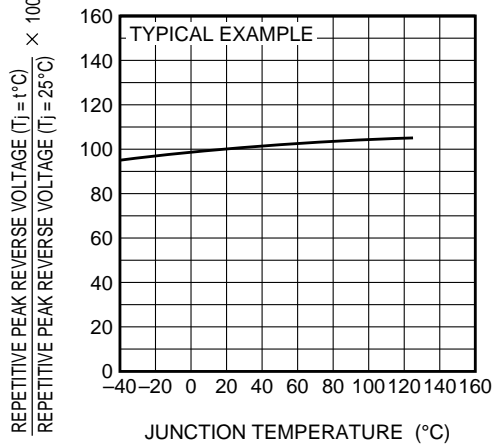
TURN-ON TIME VS. GATE CURRENT



TURN-OFF TIME VS. JUNCTION TEMPERATURE



REPETITIVE PEAK REVERSE VOLTAGE VS. JUNCTION TEMPERATURE



GATE TRIGGER CURRENT VS. GATE CURRENT PULSE WIDTH

