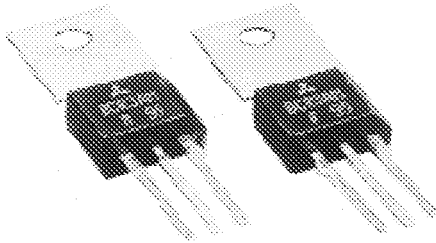


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LOW POWER USE

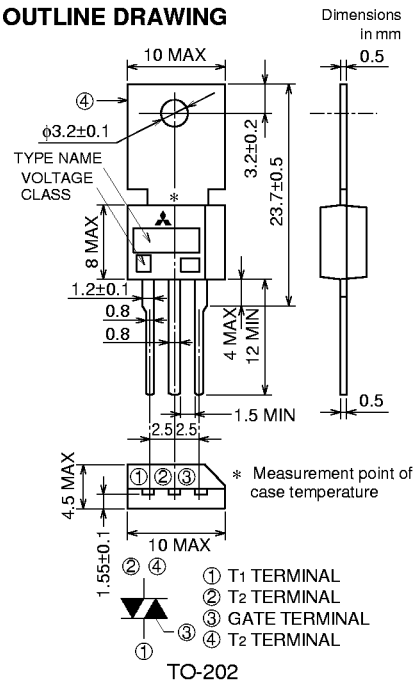
NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

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- I_T (RMS) 3A
- V_{DRM} 400V/600V
- $I_{FGT I}$, $I_{RGT I}$, $I_{RGT II}$ 30mA (15mA) *6

OUTLINE DRAWING



APPLICATION

Contactless AC switches, light dimmer, electric blankets, control of household equipment such as electric fan, solenoid drivers, small motor control, other general purpose control applications

MAXIMUM RATINGS

Symbol	Parameter	Voltage class		Unit
		8	12	
V_{DRM}	Repetitive peak off-state voltage *1	400	600	V
V_{DSM}	Non-repetitive peak off-state voltage *1	500	720	V

Symbol	Parameter	Conditions	Ratings	Unit
I_T (RMS)	RMS on-state current	Commercial frequency, sine full wave 360° conduction, $T_c=86^\circ\text{C}$	3	A
I_{TSM}	Surge on-state current	60Hz sinewave 1 full cycle, peak value, non-repetitive	30	A
P_T	I_T^2 for fusing	Value corresponding to 1 cycle of half wave 60Hz, surge on-state current	3.7	A ² s
P_{GM}	Peak gate power dissipation		3	W
P_G (AV)	Average gate power dissipation		0.3	W
V_{GM}	Peak gate voltage		6	V
I_{GM}	Peak gate current		0.5	A
T_j	Junction temperature		-40 ~ +125	°C
T_{stg}	Storage temperature		-40 ~ +125	°C
—	Weight	Typical value	1.6	g

*1. Gate open.

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LOW POWER USE

NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I_{DRM}	Repetitive peak off-state current	$T_J=125^{\circ}\text{C}$, V_{DRM} applied	—	—	2.0	mA
V_{TM}	On-state voltage	$T_C=25^{\circ}\text{C}$, $I_{TM}=4.5\text{A}$, Instantaneous measurement	—	—	1.5	V
$V_{FGT} !$	Gate trigger voltage *2	$T_J=25^{\circ}\text{C}$, $V_D=6\text{V}$, $R_L=6\Omega$, $R_G=330\Omega$	—	—	1.5	V
$V_{RGT} !$			—	—	1.5	V
$V_{RGT} \#$			—	—	1.5	V
$I_{FGT} !$	Gate trigger current *2	$T_J=25^{\circ}\text{C}$, $V_D=6\text{V}$, $R_L=6\Omega$, $R_G=330\Omega$	—	—	30 *6	mA
$I_{RGT} !$			—	—	30 *6	mA
$I_{RGT} \#$			—	—	30 *6	mA
V_{GD}	Gate non-trigger voltage	$T_J=125^{\circ}\text{C}$, $V_D=1/2V_{DRM}$	0.2	—	—	V
$R_{th} (j-c)$	Thermal resistance	Junction to case *4 *5	—	—	10	$^{\circ}\text{C/W}$
$(dv/dt)_c$	Critical-rate of rise of off-state commutating voltage		*3	—	—	$\text{V}/\mu\text{s}$

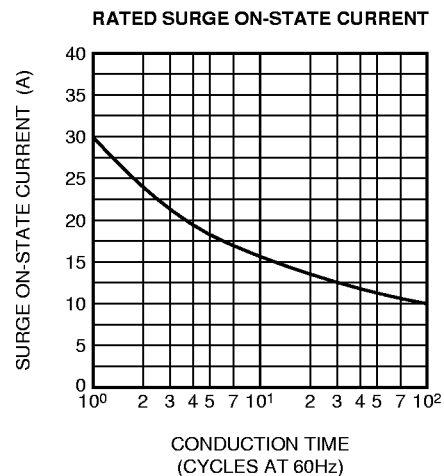
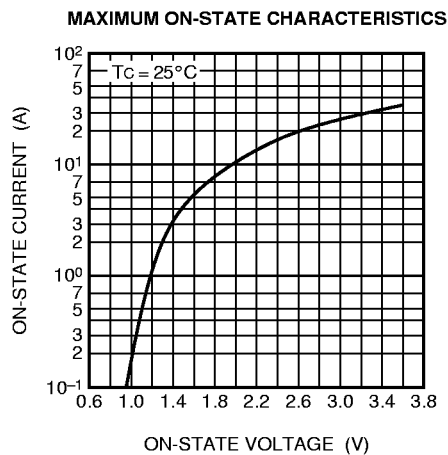
*2. Measurement using the gate trigger characteristics measurement circuit.

*3. The critical-rate of rise of the off-state commutating voltage is shown in the table below.

*4. Case temperature is measured at the T_2 terminal 1.5mm away from the molded case.*5. The contact thermal resistance $R_{th} (c-l)$ in case of greasing is 3°C/W .*6. High sensitivity ($I_{GT}\leq 15\text{mA}$) is also available. (IGT item 1)

Voltage class	V_{DRM} (V)	$(dv/dt)_c$		Test conditions	Commutating voltage and current waveforms (inductive load)
		Min.	Unit		
8	400	5	$\text{V}/\mu\text{s}$	1. Junction temperature $T_J=125^{\circ}\text{C}$ 2. Rate of decay of on-state commutating current $(di/dt)_c=1.5\text{A/ms}$ 3. Peak off-state voltage $V_D=400\text{V}$	
12	600				

PERFORMANCE CURVES

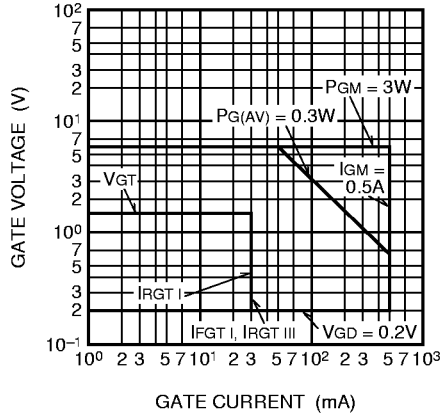


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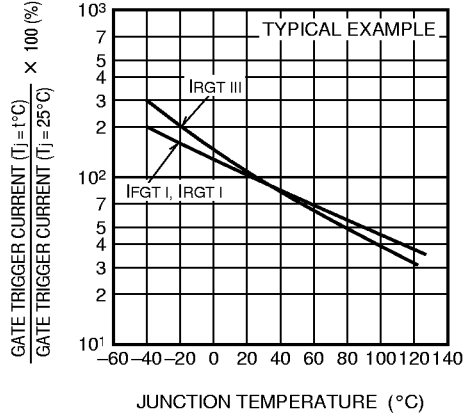
LOW POWER USE

NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

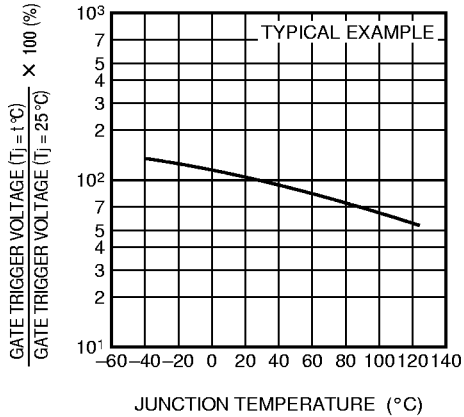
GATE CHARACTERISTICS



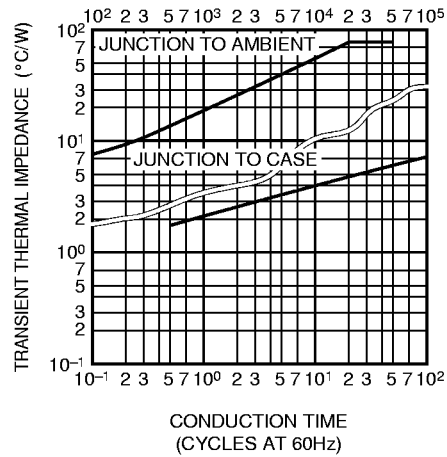
GATE TRIGGER CURRENT VS. JUNCTION TEMPERATURE



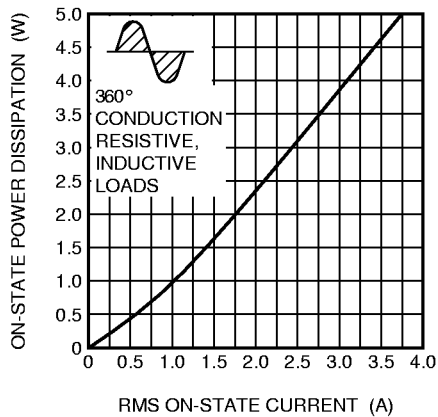
GATE TRIGGER VOLTAGE VS. JUNCTION TEMPERATURE



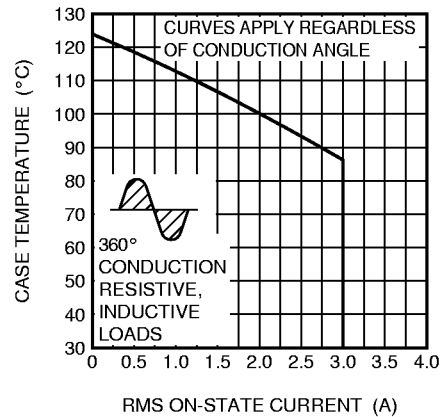
MAXIMUM TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS



MAXIMUM ON-STATE POWER DISSIPATION



ALLOWABLE CASE TEMPERATURE VS. RMS ON-STATE CURRENT

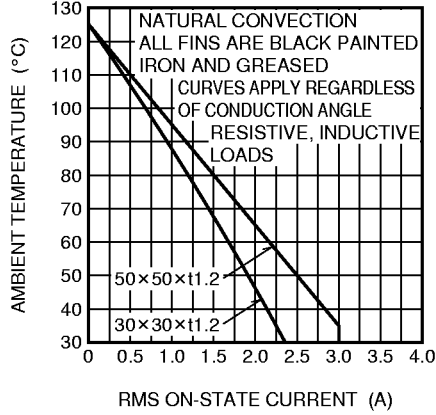


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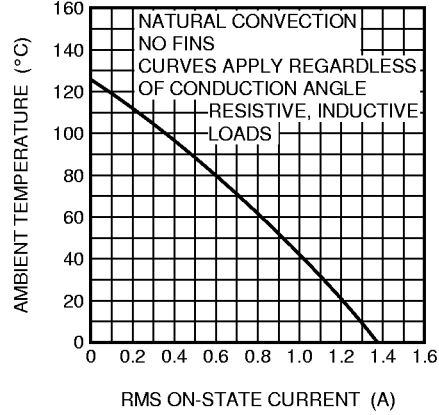
LOW POWER USE

NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

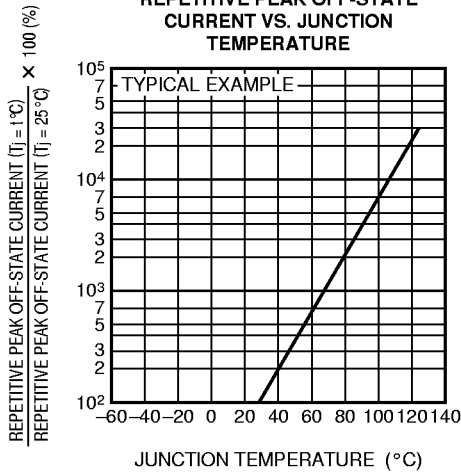
ALLOWABLE AMBIENT TEMPERATURE
VS. RMS ON-STATE CURRENT



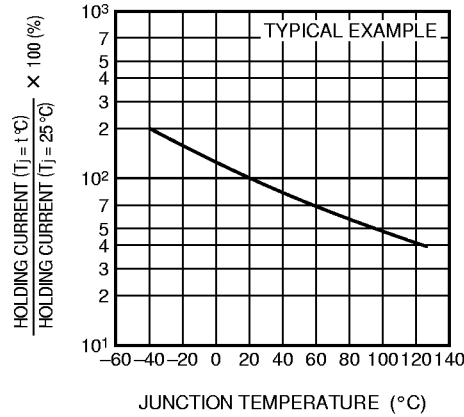
ALLOWABLE AMBIENT TEMPERATURE
VS. RMS ON-STATE CURRENT



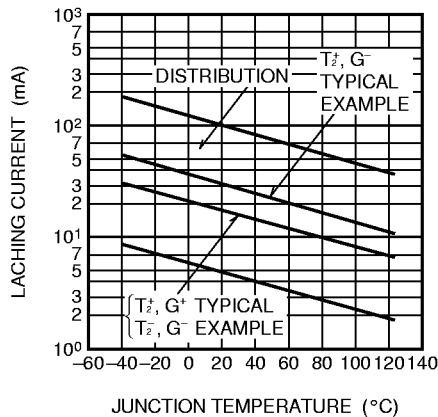
REPETITIVE PEAK OFF-STATE
CURRENT VS. JUNCTION
TEMPERATURE



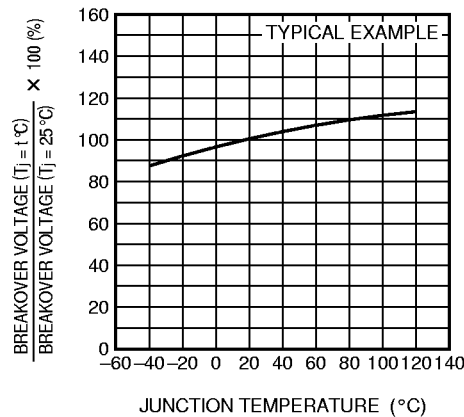
HOLDING CURRENT VS.
JUNCTION TEMPERATURE



LACHING CURRENT VS.
JUNCTION TEMPERATURE



BREAKOVER VOLTAGE VS.
JUNCTION TEMPERATURE

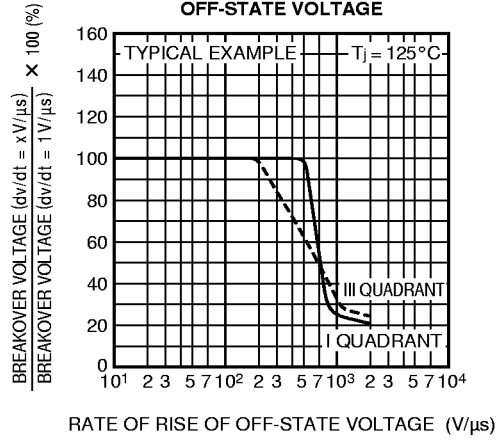


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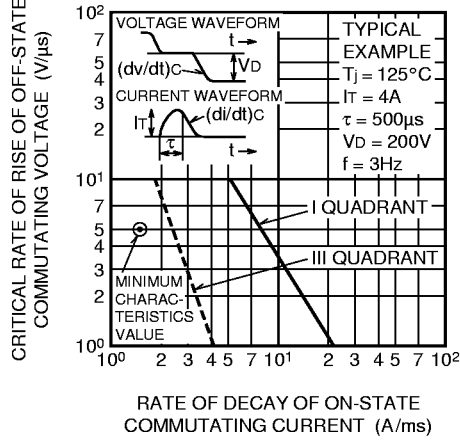
LOW POWER USE

NON-INSULATED TYPE, PLANAR PASSIVATION TYPE

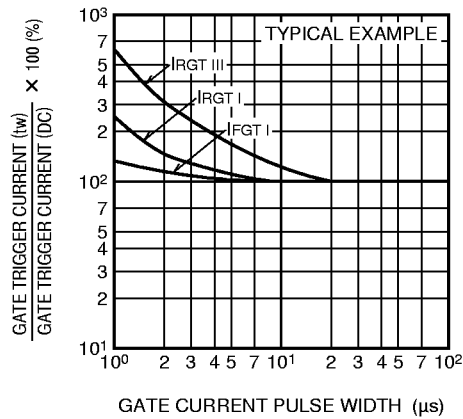
**BREAKOVER VOLTAGE VS.
RATE OF RISE OF
OFF-STATE VOLTAGE**



COMMUTATION CHARACTERISTICS



**GATE TRIGGER CURRENT VS.
GATE CURRENT PULSE WIDTH**



GATE TRIGGER CHARACTERISTICS TEST CIRCUITS

