DESCRIPTION

This part is suitable for motor control, water heaters, lighting control, induction motor starting circuits, solid-state relays, on/off switching etc. The part is available in TO-251 package and is suitable for general purpose power switching applications.

FEATURES

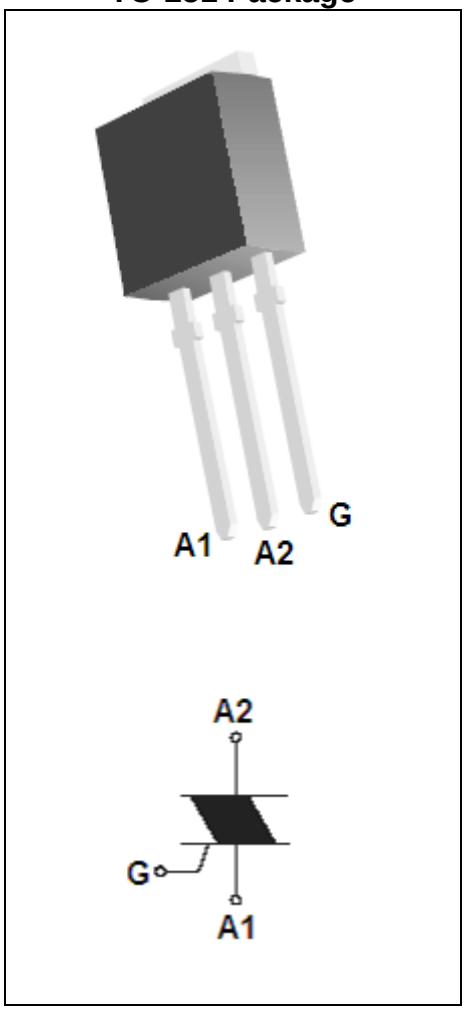
- TRIAC
- TO-251 Package
- $I_{T(RMS)}$ = 3 A
- V_{DRM} = 600 Volt
- V_{RRM} = 600 Volt
- I_{GT} = 15 mA

APPLICATIONS

- AC power switching applications
- Washing Machine
- Vacuum Cleaner
- Rice Cookers
- Microwave Ovens
- Hair Dryers
- Copier Machines
- Motor Controls
- Dimmers
- Heater Controls
- Vending Machines

PIN-OUT

TO-251 Package



SPECIFICATIONS

ELECTRICAL CHARACTERISTICS (T_j = 25°C)

PARAMETER		MAX VALUE	UNIT
Repetitive Peak Off-State Current, I_{DRM1}	V_D = 600V	1	mA
Peak On-state Voltage, V_{TM}	I_T=4.5A	1.4	V
Gate Threshold Current, 1st quadrant, I^+_{GT1}	V_D=6V, R_L=10Ω	15	mA
Gate Threshold Current, 2nd quadrant, I^-_{GT1}	V_D=6V, R_L=10Ω	15	mA
Gate Threshold Current, 3rd quadrant, I^+_{GT3}	V_D=6V, R_L=10Ω	-	mA
Gate Threshold Current, 4th quadrant, I^-_{GT3}	V_D=6V, R_L=10Ω	15	mA
Gate Threshold Voltage, 1st quadrant, V^+_{GT1}	V_D=6V, R_L=10Ω	1.5	V
Gate Threshold Voltage, 2nd quadrant, V^-_{GT1}	V_D=6V, R_L=10Ω	1.5	V
Gate Threshold Voltage, 3rd quadrant, V^+_{GT3}	V_D=6V, R_L=10Ω	-	V
Gate Threshold Voltage, 4th quadrant, V^-_{GT3}	V_D=6V, R_L=10Ω	1.5	V
Gate-Drain On-Voltage, V_{GD}	T_j=125°C, V_D=0.5V_{DRM}	0.2	V
dV/dt	T_j=125°C, V_D=400V di/dt=-1.5 A/ms	5	V/μs
Holding Current, I_H		2	mA

MAXIMUM RATINGS (T_A = 25°C)

PARAMETER		VALUE	UNIT
	V_{DRM}	600	V
RMS on-state current (full sine wave)	$I_{T(RMS)}$	3	A
Non-repetitive surge peak current	I_{TSM}	27/30	A
Value for fusing	I^2t	3.7	A^2s
Peak gate power dissipation	P_{GM}	1.5	W
Average peak gate power dissipation	$P_{G(AV)}$	0.1	W
Peak gate current	I_{GM}	1	A
Peak gate voltage	V_{GM}	7	V
Junction Temperature	T_j	-40 ~ +125	°C

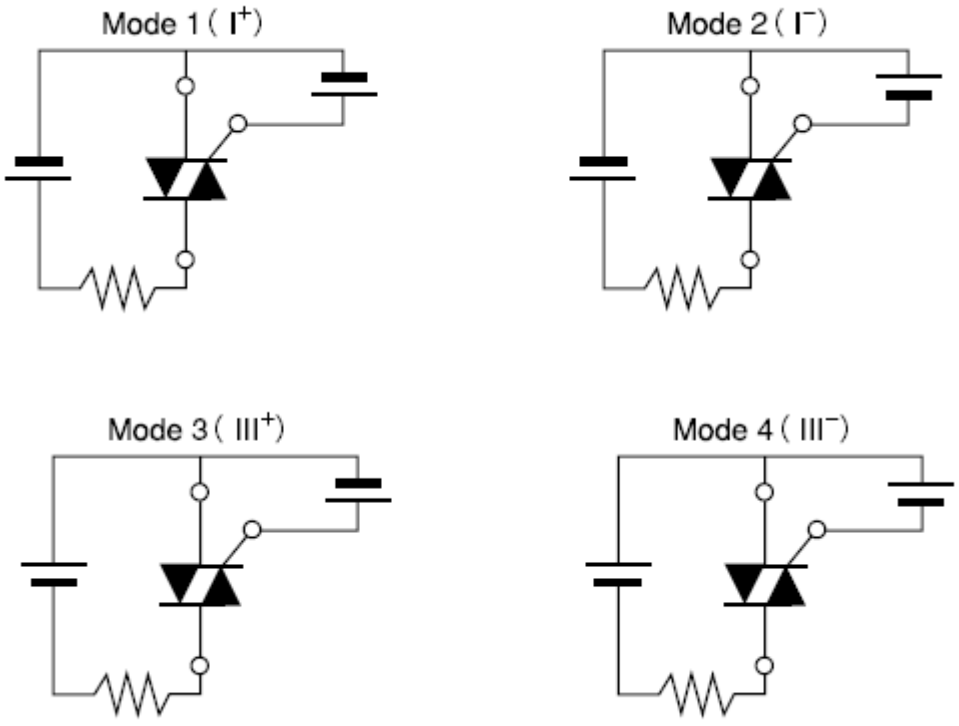
THERMAL RESISTANCE

PARAMETER	PACKAGE	VALUE	UNIT
$R_{th(j-c)}$	TO-220 - Insulated	3.8	°C/W

OTHERS

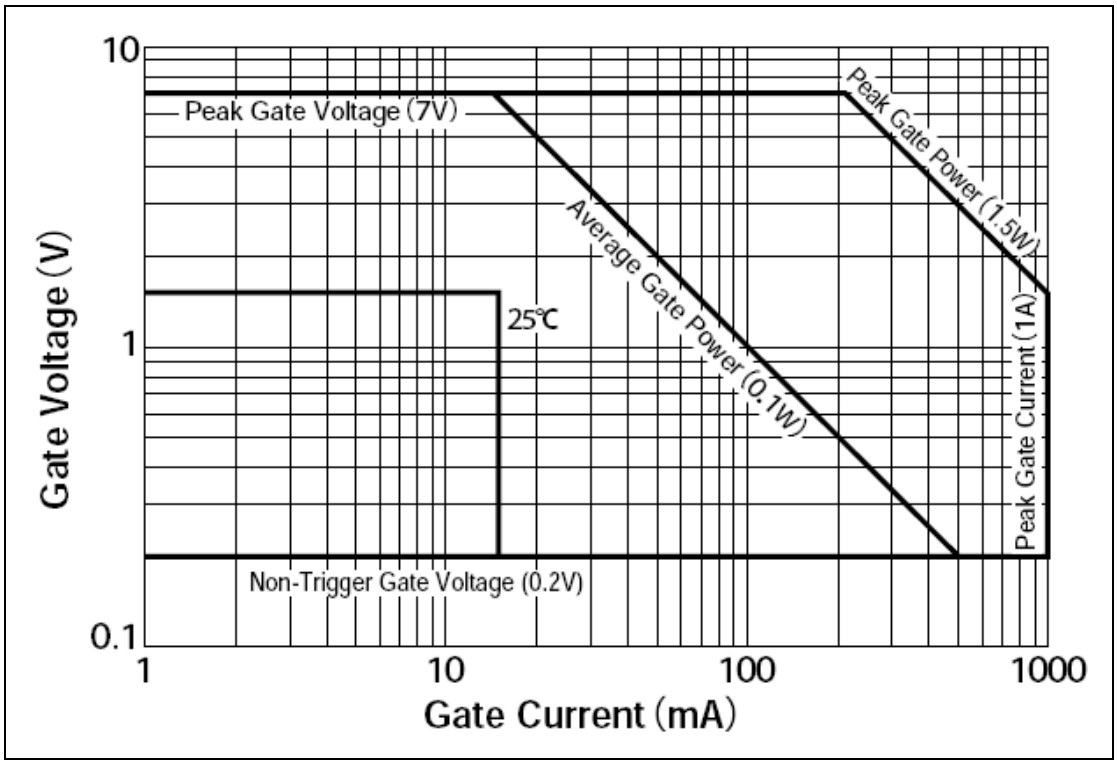
PARAMETER		MIN	TYP	MAX	UNIT
Temperature range		-40	-	125	°C
Relative humidity		35	-	65	%
Shock resistance	Destruction	-	-	100	G
	Malfunction	-	-	100	G
Vibration resistance	Destruction: 10 - 55 Hz	-	-	1.5	mm
	Malfunction: 10 - 55 Hz	-	-	1.5	mm

TRIGGER MODES

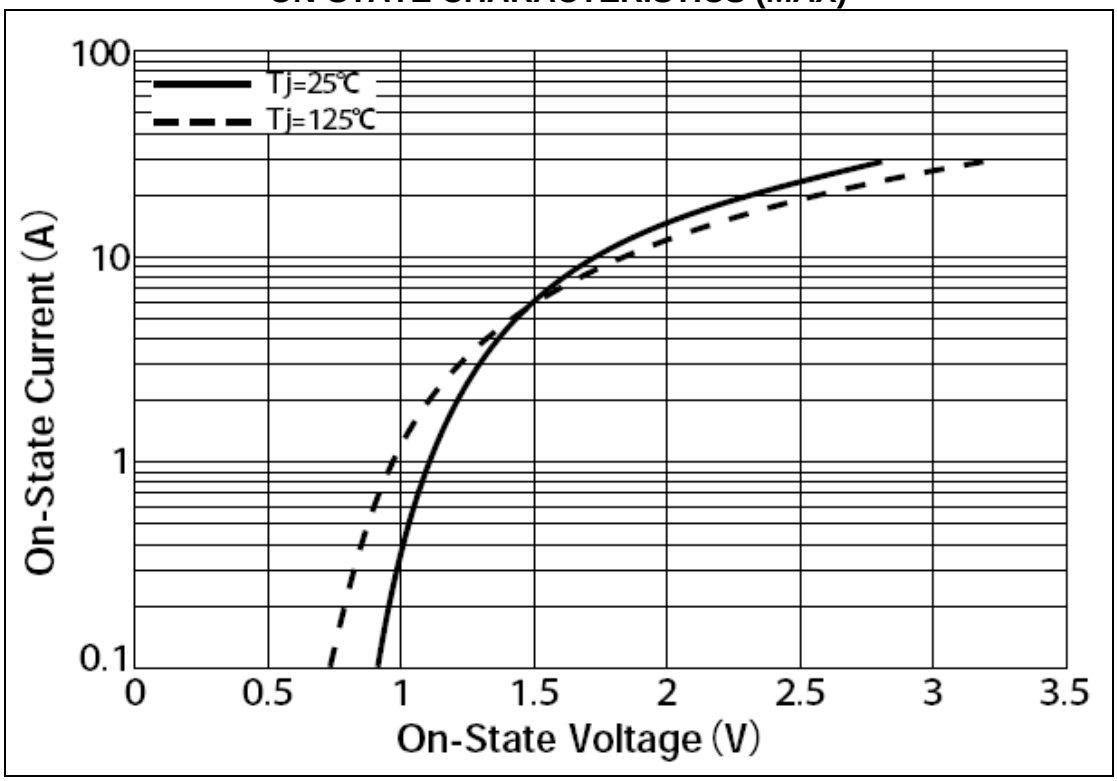


TYPICAL CHARACTERISTICS

GATE CHARACTERISTICS

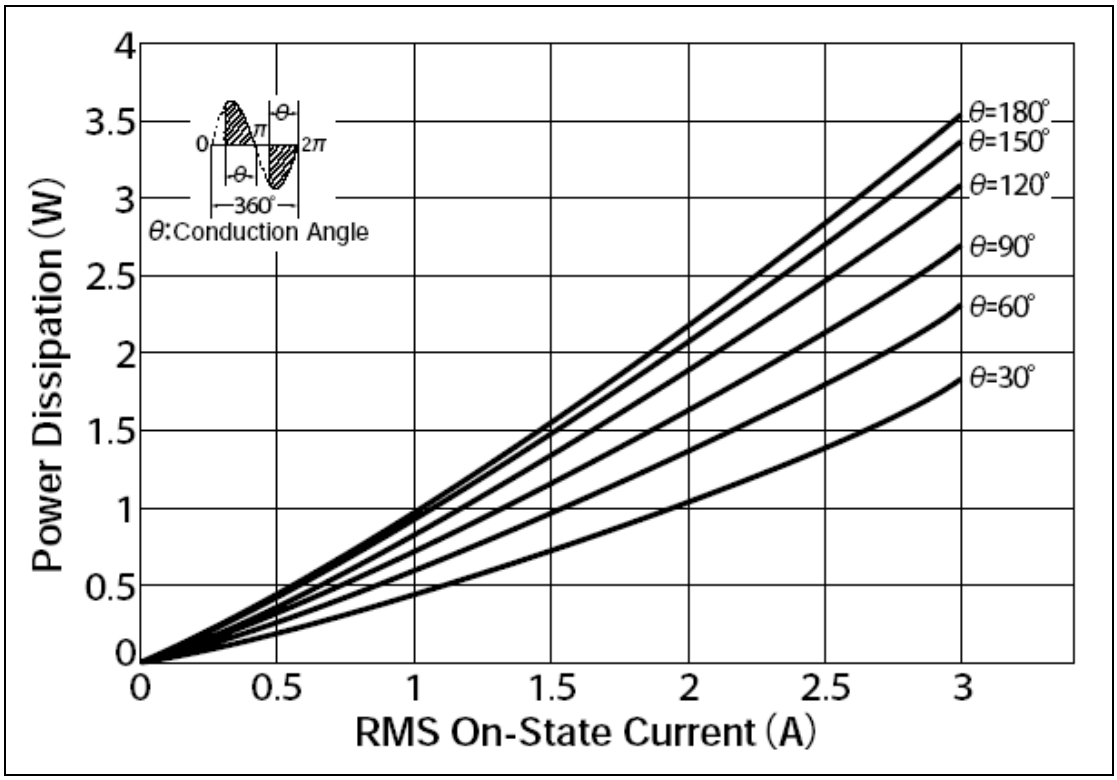


ON-STATE CHARACTERISTICS (MAX)

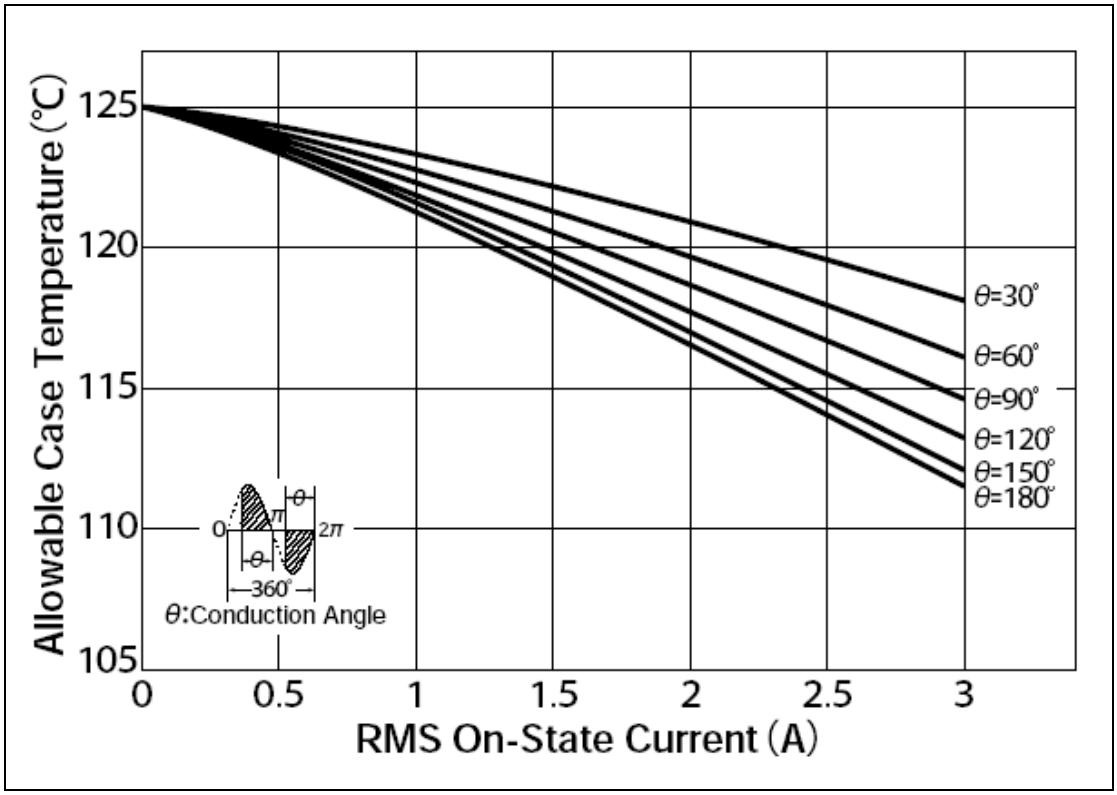


TYPICAL CHARACTERISTICS – CONTINUED

RMS ON-STATE CURRENT VS MAXIMUM POWER DISSIPATION

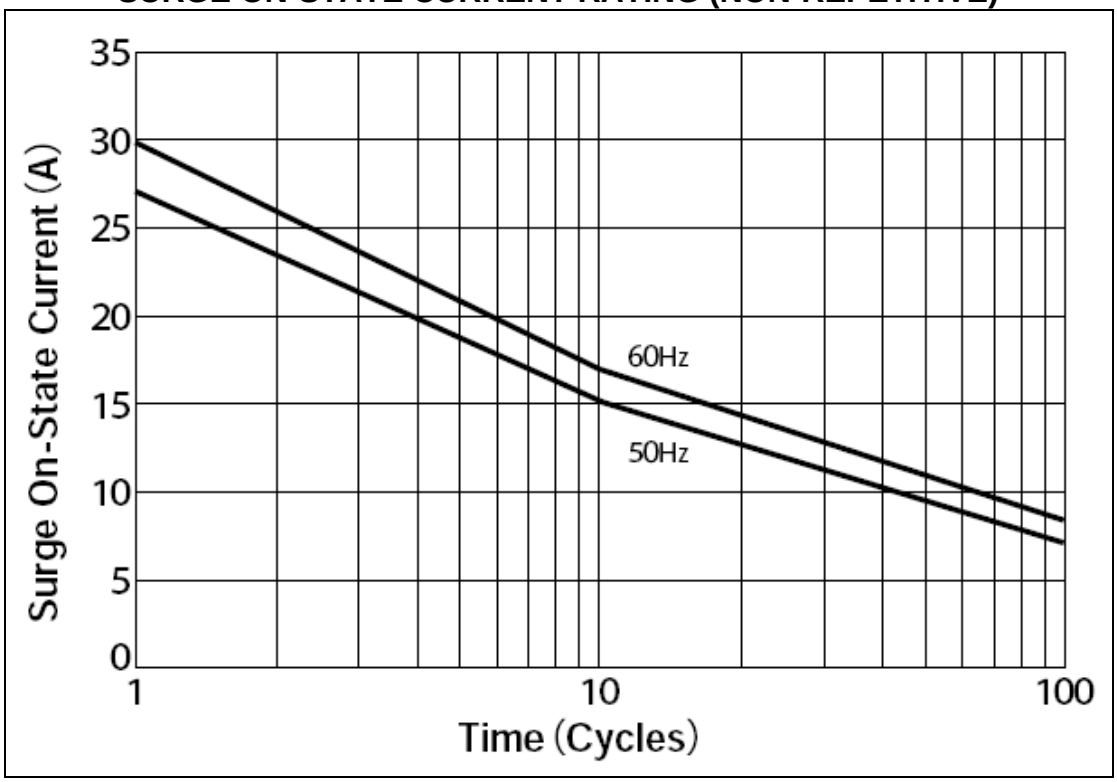


RMS ON-STATE VS ALLOWABLE CASE TEMPEATURE

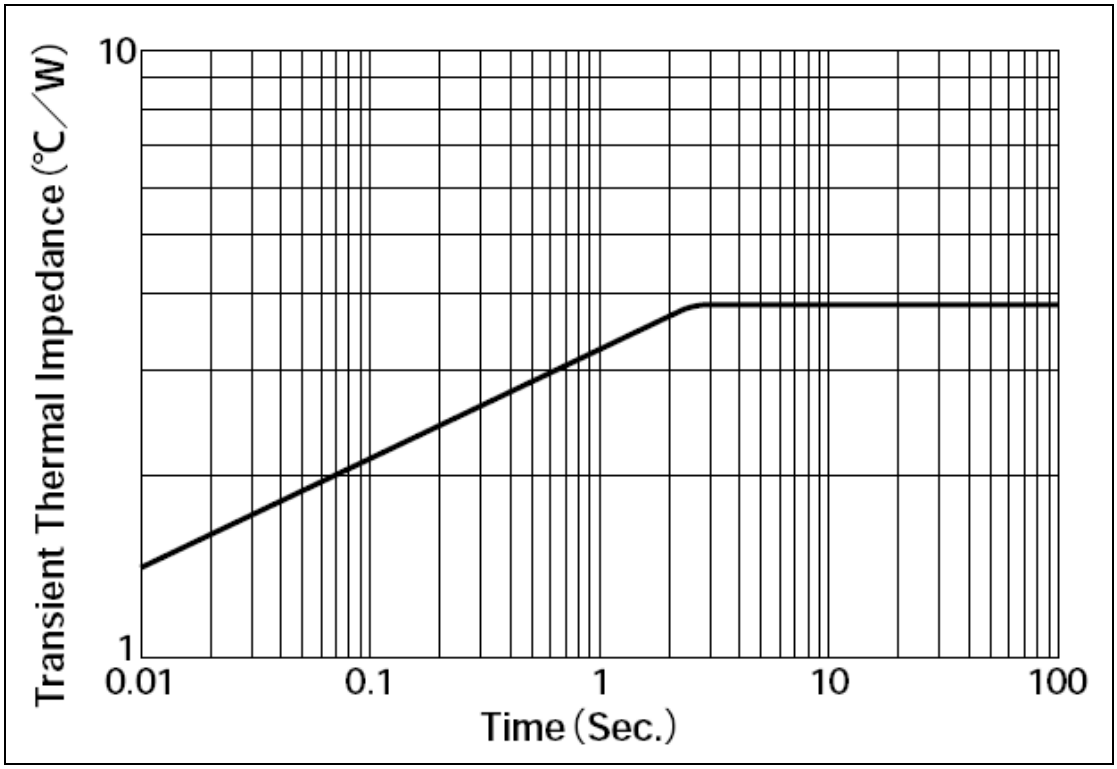


TYPICAL CHARACTERISTICS – CONTINUED

SURGE ON-STATE CURRENT RATING (NON-REPETITIVE)

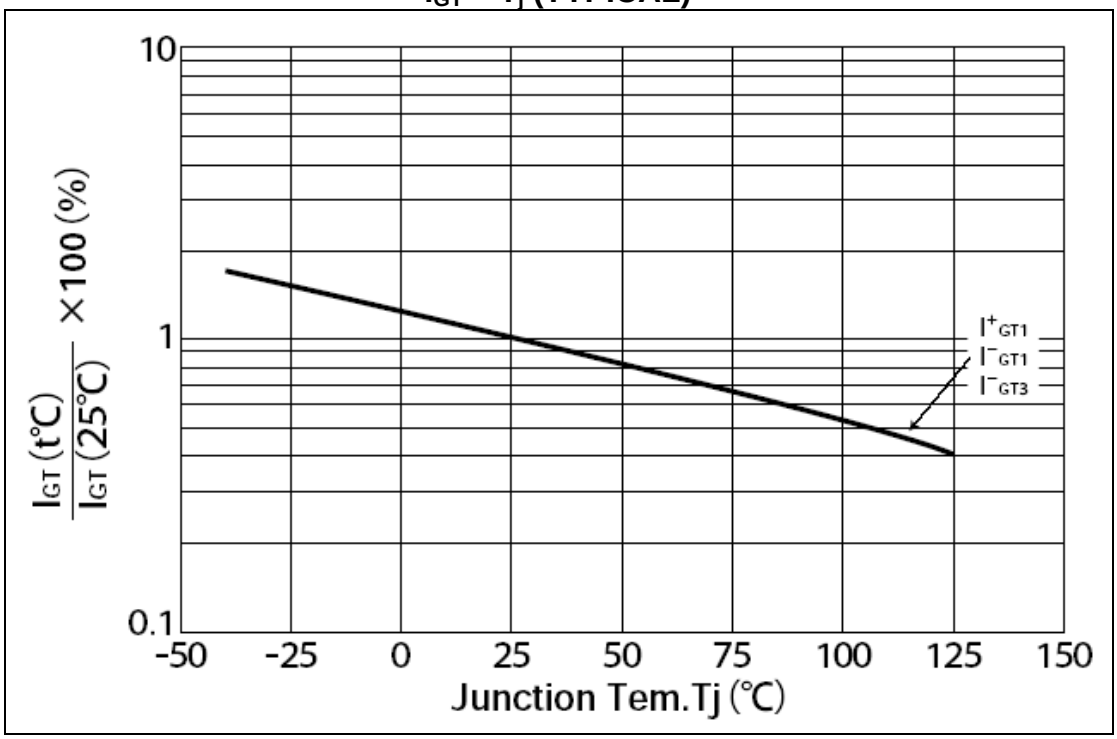


TRANSIENT THERMAL IMPEDANCE

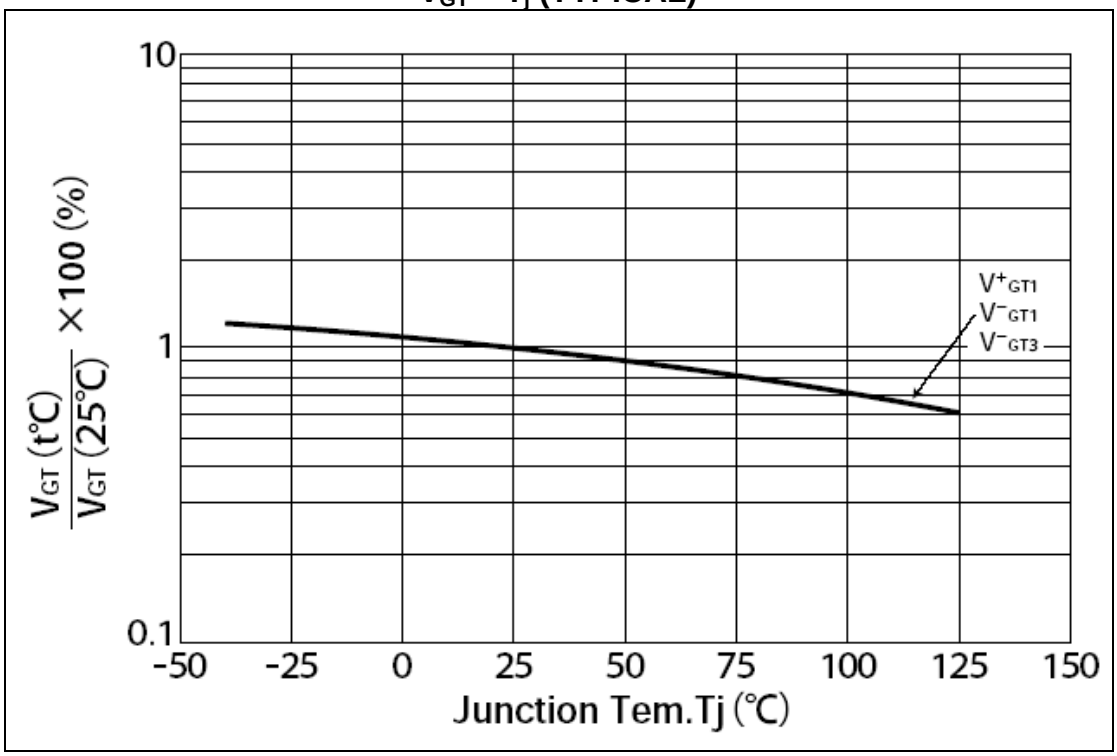


TYPICAL CHARACTERISTICS – CONTINUED

I_{GT} – T_j (TYPICAL)

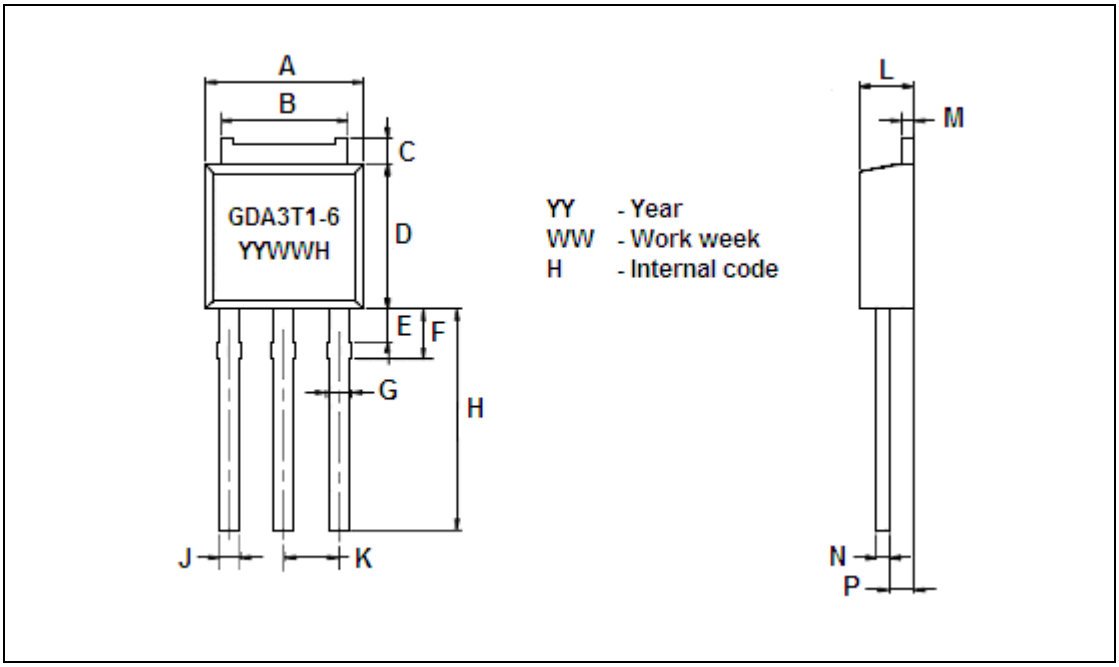


V_{GT} – T_j (TYPICAL)



PACKAGING

DIMENSIONS AND MARKING FOR TO-251 PACKAGE



TO-251		A	B	C	D	E	F	G	H	J
MM	Min	6.48	5.23	0.89	5.97	1.15	1.91	0.78	8.89	0.71
	Max	6.73	5.43	1.27	6.22	1.52	2.28	1.14	9.53	0.89
INCHES	Min	0.255	0.206	0.035	0.235	0.045	0.075	0.031	0.350	0.028
	Max	0.265	0.214	0.050	0.245	0.060	0.090	0.045	0.375	0.035

TO-251		K	L	M	N	P
MM	Min	2.28 BSC	2.21	0.46	0.46	0.89
	Max		2.38	0.58	0.58	1.14
INCHES	Min	0.090 BSC	0.087	0.018	0.018	0.035
	Max		0.094	0.023	0.023	0.045

ORDERING INFORMATION

PART NUMBER	V_{DRM}/V_{RRM} (V)	PACKAGE
GDA3T1-6	600	TO-251

The information presented in this data sheet is believed to be accurate and reliable. Application circuits shown are typical examples illustrating the operation of the device.
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Reference to products of other manufacturers are solely for convenience and do not imply total equivalency of design, performance, or otherwise.