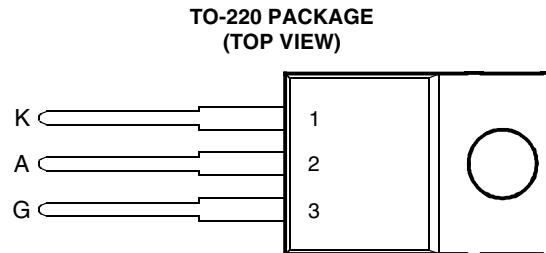


- 8 A Continuous On-State Current
- 80 A Surge-Current
- Glass Passivated Wafer
- 400 V to 800 V Off-State Voltage
- Max I_{GT} of 20 mA



Pin 2 is in electrical contact with the mounting base.

MDC1ACA

absolute maximum ratings over operating case temperature (unless otherwise noted)

RATING		SYMBOL	VALUE	UNIT
Repetitive peak off-state voltage	TIC116D	V_{DRM}	400	V
	TIC116M		600	
	TIC116S		700	
	TIC116N		800	
Repetitive peak reverse voltage	TIC116D	V_{RRM}	400	V
	TIC116M		600	
	TIC116S		700	
	TIC116N		800	
Continuous on-state current at (or below) 70°C case temperature (see Note 1)	$I_{T(RMS)}$		8	A
Average on-state current (180° conduction angle) at (or below) 70°C case temperature (see Note 2)	$I_{T(AV)}$		5	A
Surge on-state current at (or below) 25°C case temperature (see Note 3)	I_{TM}		80	A
Peak positive gate current (pulse width $\leq 300 \mu s$)	I_{GM}		3	A
Peak gate power dissipation (pulse width $\leq 300 \mu s$)	P_{GM}		5	W
Average gate power dissipation (see Note 4)	$P_{G(AV)}$		1	W
Operating case temperature range	T_C		-40 to +110	°C
Storage temperature range	T_{stg}		-40 to +125	°C
Lead temperature 1.6 mm from case for 10 seconds	T_L		230	°C

NOTES: 1. These values apply for continuous dc operation with resistive load. Above 70°C derate linearly to zero at 110°C.
 2. This value may be applied continuously under single phase 50 Hz half-sine-wave operation with resistive load. Above 70°C derate linearly to zero at 110°C.
 3. This value applies for one 50 Hz half-sine-wave when the device is operating at (or below) the rated value of peak reverse voltage and on-state current. Surge may be repeated after the device has returned to original thermal equilibrium.
 4. This value applies for a maximum averaging time of 20 ms.

PRODUCT INFORMATION

electrical characteristics at 25°C case temperature (unless otherwise noted)

PARAMETER		TEST CONDITIONS			MIN	TYP	MAX	UNIT
I_{DRM}	Repetitive peak off-state current	V_D = rated V_{DRM}		T_C = 110°C			2	mA
I_{RRM}	Repetitive peak reverse current	V_R = rated V_{RRM}	I_G = 0	T_C = 110°C			2	mA
I_{GT}	Gate trigger current	V_{AA} = 12 V	R_L = 100 Ω	$t_{p(g)}$ ≥ 20 μs		8	20	mA
V_{GT}	Gate trigger voltage	V_{AA} = 12 V	R_L = 100 Ω	T_C = - 40°C			2.5	V
		$t_{p(g)}$ ≥ 20 μs				0.8	1.5	
		V_{AA} = 12 V	R_L = 100 Ω		0.2			
		$t_{p(g)}$ ≥ 20 μs		T_C = 110°C				
I_H	Holding current	V_{AA} = 12 V		T_C = - 40°C			100	mA
		Initiating I_T = 100 mA					40	
V_T	On-state voltage	I_T = 8 A	(see Note 5)				1.7	V
dv/dt	Critical rate of rise of off-state voltage	V_D = rated V_D	I_G = 0	T_C = 110°C		400		V/μs

NOTE 5: This parameter must be measured using pulse techniques, t_p = 300 μs, duty cycle ≤ 2 %. Voltage sensing-contacts, separate from the current carrying contacts, are located within 3.2 mm from the device body.

thermal characteristics

PARAMETER		MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction to case thermal resistance			3	°C/W
$R_{\theta JA}$	Junction to free air thermal resistance			62.5	°C/W

PRODUCT INFORMATION

THERMAL INFORMATION

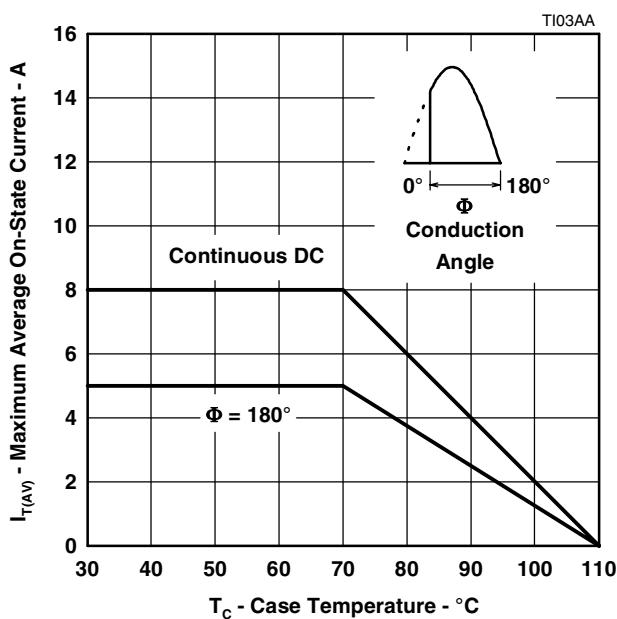
AVERAGE ON-STATE CURRENT
DERATING CURVE

Figure 1.

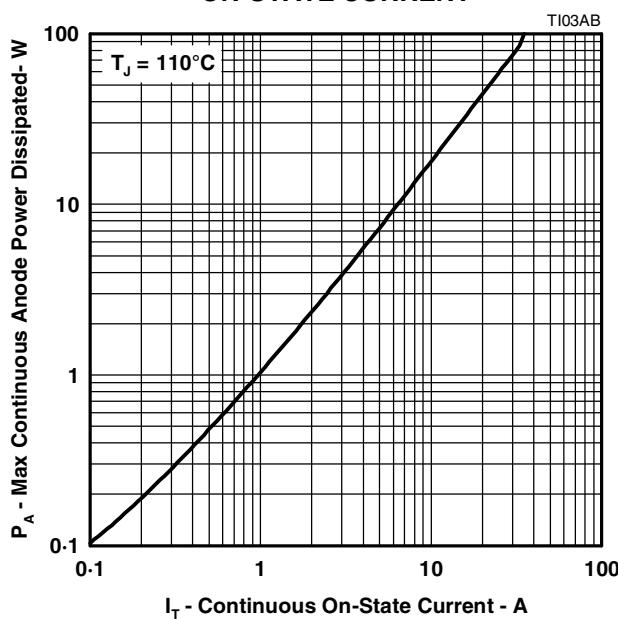
MAX ANODE POWER LOSS
VS
ON-STATE CURRENT

Figure 2.

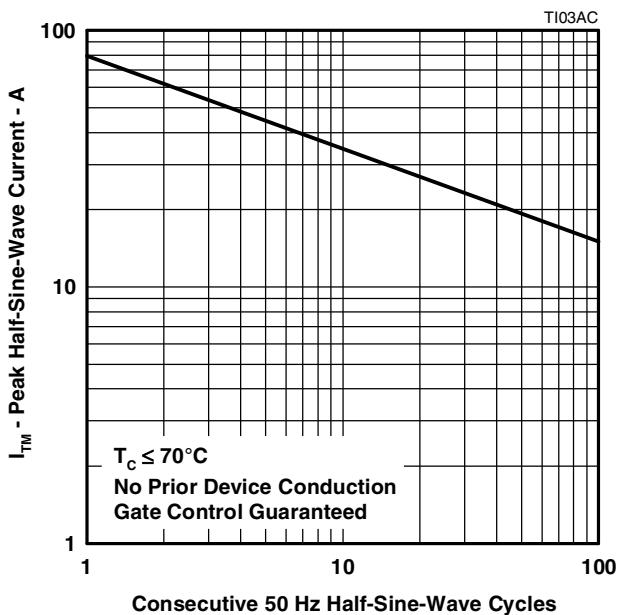
SURGE ON-STATE CURRENT
VS
CYCLES OF CURRENT DURATION

Figure 3.

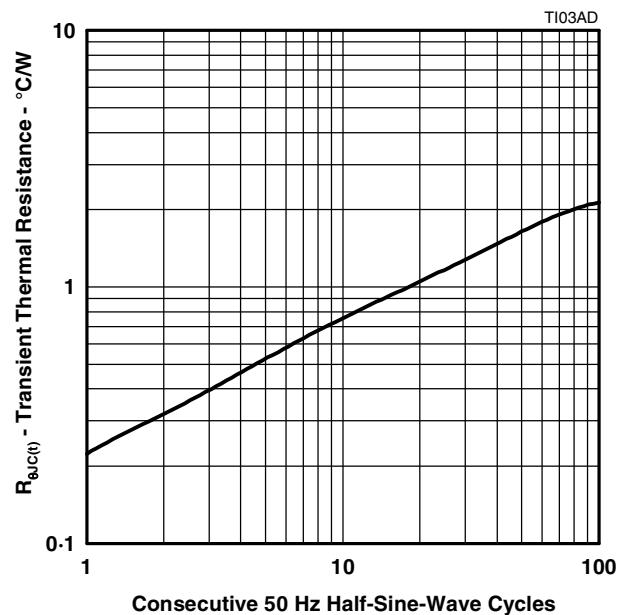
TRANSIENT THERMAL RESISTANCE
VS
CYCLES OF CURRENT DURATION

Figure 4.

PRODUCT INFORMATION

TYPICAL CHARACTERISTICS

**GATE TRIGGER CURRENT
VS
CASE TEMPERATURE**

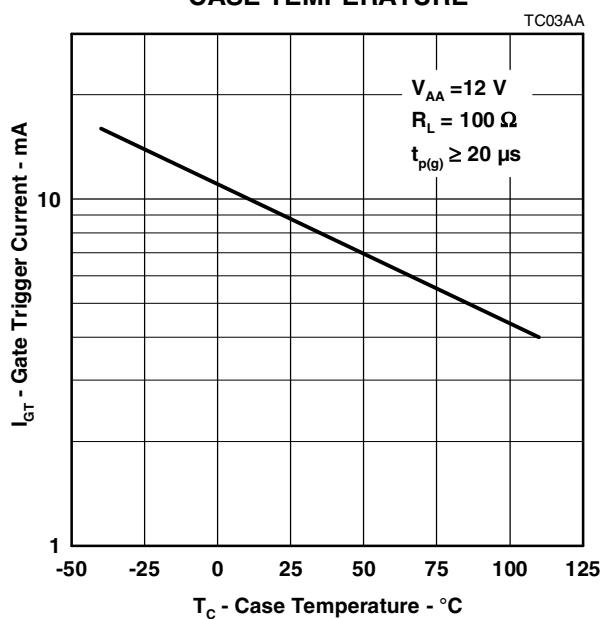


Figure 5.

**GATE TRIGGER VOLTAGE
VS
CASE TEMPERATURE**

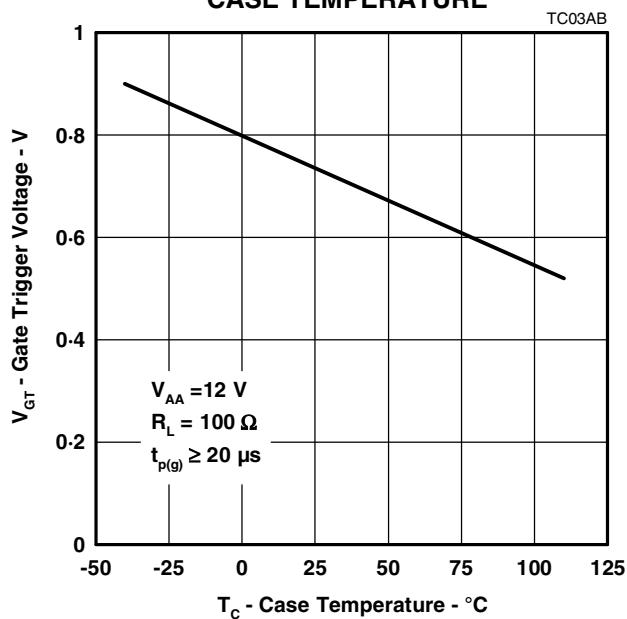


Figure 6.

**HOLDING CURRENT
VS
CASE TEMPERATURE**

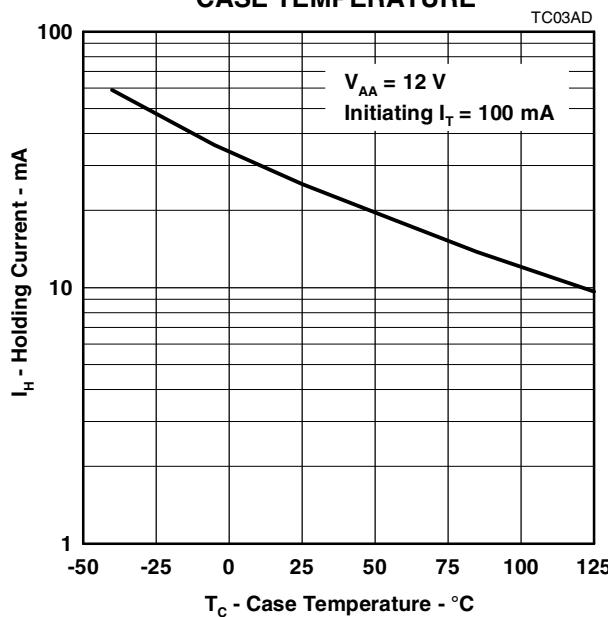


Figure 7.

**PEAK ON-STATE VOLTAGE
VS
PEAK ON-STATE CURRENT**

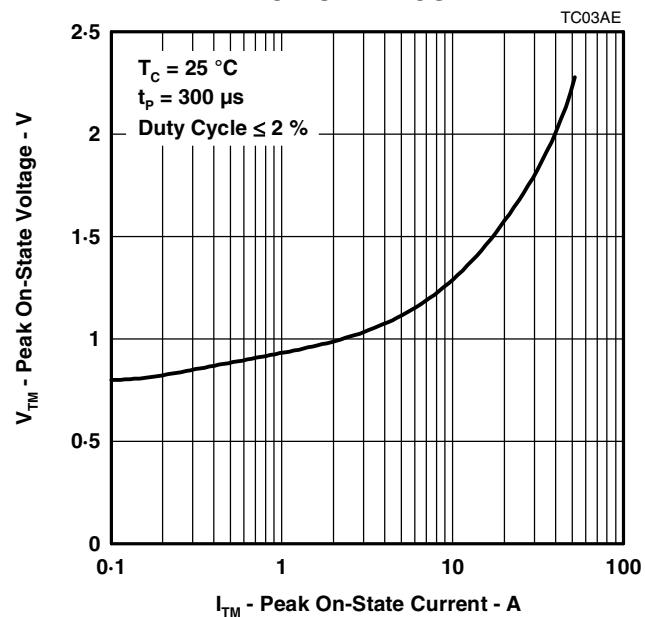


Figure 8.

PRODUCT INFORMATION