

TIC116 SERIES SILICON CONTROLLED RECTIFIERS

BOURNS®

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

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

NOTE 5: This parameter must be measured using pulse techniques, $t_p = 300\ \mu\text{s}$, duty cycle $\leq 2\%$. 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	$^\circ\text{C/W}$
$R_{\theta JA}$	Junction to free air thermal resistance			62.5	$^\circ\text{C/W}$

PRODUCT INFORMATION

APRIL 1971 - REVISED SEPTEMBER 2002

Specifications are subject to change without notice.

THERMAL INFORMATION

**AVERAGE ON-STATE CURRENT
DERATING CURVE**

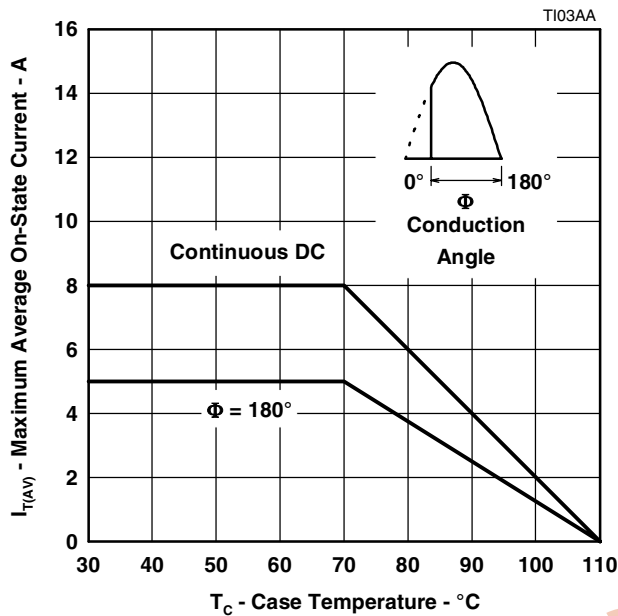


Figure 1.

**MAX ANODE POWER LOSS
vs
ON-STATE CURRENT**

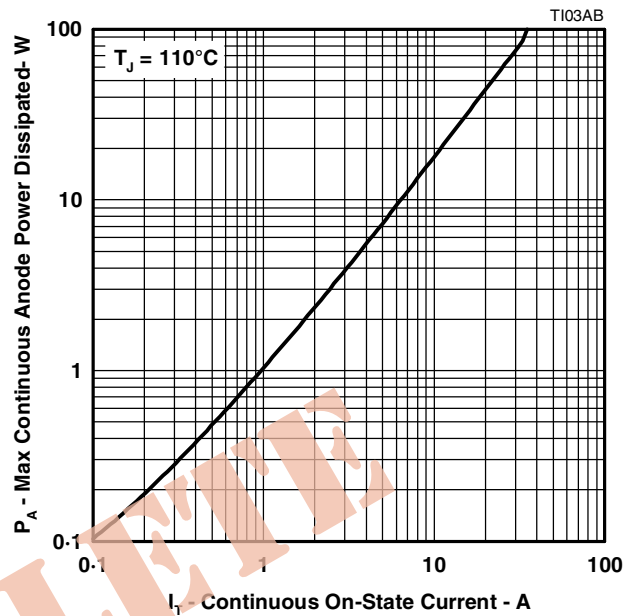


Figure 2.

**SURGE ON-STATE CURRENT
vs
CYCLES OF CURRENT DURATION**

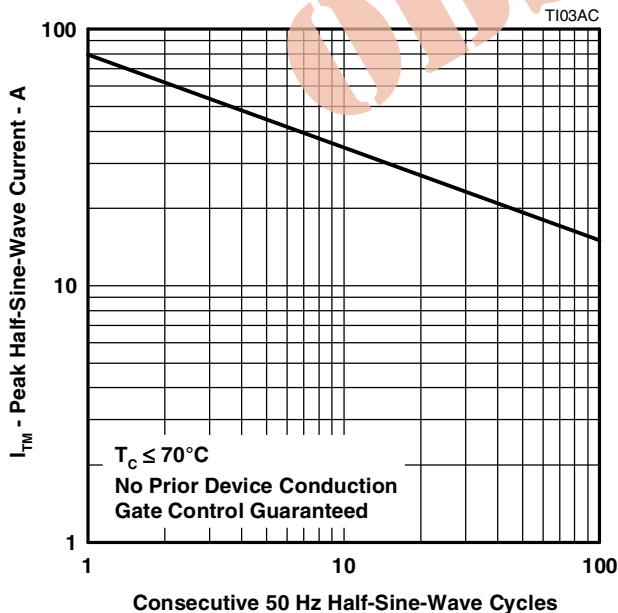


Figure 3.

**TRANSIENT THERMAL RESISTANCE
vs
CYCLES OF CURRENT DURATION**

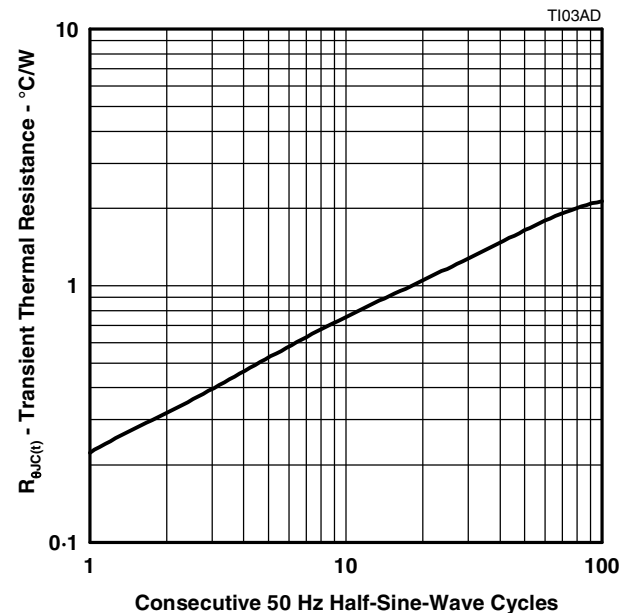


Figure 4.

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TYPICAL CHARACTERISTICS

GATE TRIGGER CURRENT
vs
CASE TEMPERATURE

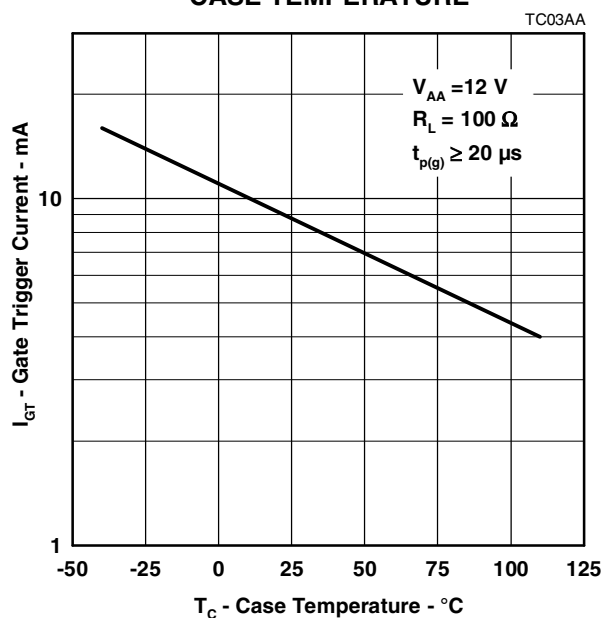


Figure 5.

GATE TRIGGER VOLTAGE
vs
CASE TEMPERATURE

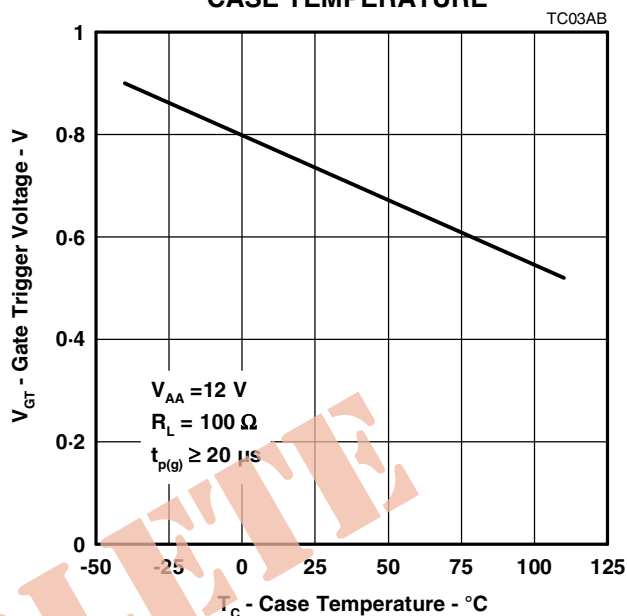


Figure 6.

HOLDING CURRENT
vs
CASE TEMPERATURE

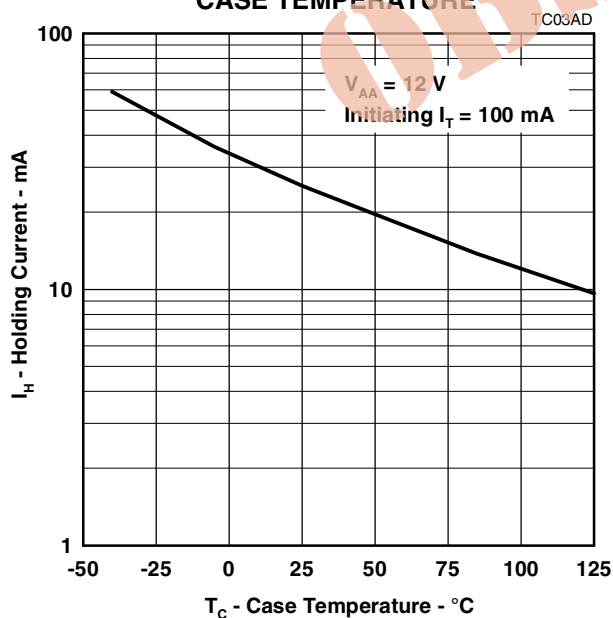


Figure 7.

PEAK ON-STATE VOLTAGE
vs
PEAK ON-STATE CURRENT

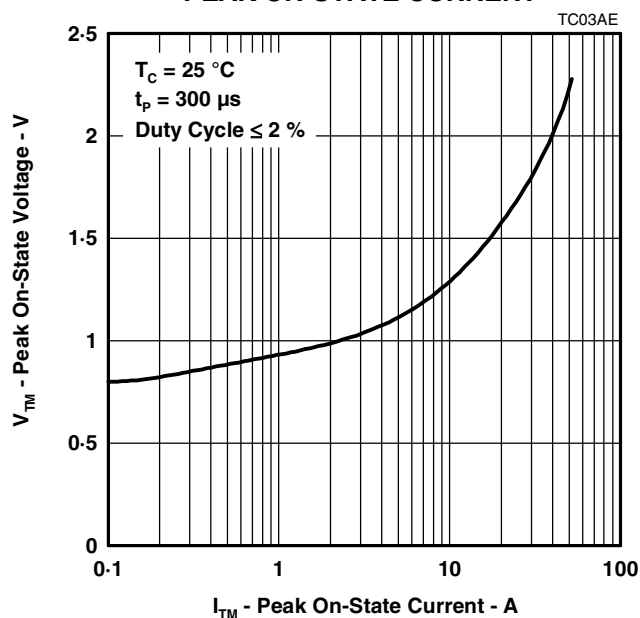


Figure 8.

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