


## 阅读申明

- 1.本站收集的数据手册和产品资料都来自互联网，版权归原作者所有。如读者和版权方有任何异议请及时告之，我们将妥善解决。
- 2.本站提供的中文数据手册是英文数据手册的中文翻译，其目的是协助用户阅读，该译文无法自动跟随原稿更新，同时也可能存在翻译上的不当。建议读者以英文原稿为参考以便获得更精准的信息。
- 3.本站提供的产品资料，来自厂商的技术支持或者使用者的心得体会等，其内容可能存在描述上的差异，建议读者做出适当判断。
- 4.如需与我们联系，请发邮件到marketing@iczoom.com，主题请标有“数据手册”字样。

## Read Statement

1. The datasheets and other product information on the site are all from network reference or other public materials, and the copyright belongs to the original author and original published source. If readers and copyright owners have any objections, please contact us and we will deal with it in a timely manner.
2. The Chinese datasheets provided on the website is a Chinese translation of the English datasheets. Its purpose is for reader's learning exchange only and do not involve commercial purposes. The translation cannot be automatically updated with the original manuscript, and there may also be improper translations. Readers are advised to use the English manuscript as a reference for more accurate information.
3. All product information provided on the website refer to solutions from manufacturers' technical support or users the contents may have differences in description, and readers are advised to take the original article as the standard.
4. If you have any questions, please contact us at marketing@iczoom.com and mark the subject with "Datasheets" .

PHASE CONTROL SCR

	$V_T < 1.45V @ 40A$ $I_{TSM} = 500A$ $V_{RRM} = 800 - 1200V$
---	--

**Description/ Features**

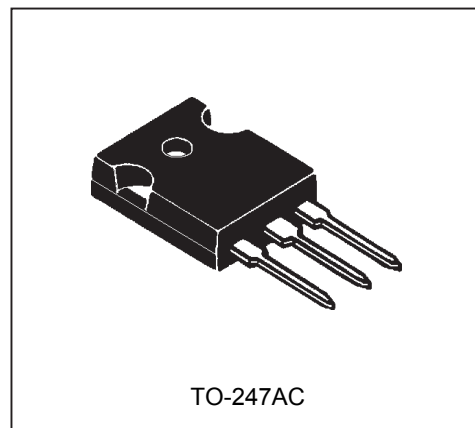
The 40TPS... **SAFEIR** series of silicon controlled rectifiers are specifically designed for medium power switching and phase control applications. The glass passivation technology used has reliable operation up to 125°C junction temperature. Low lgt parts available.

Typical applications are in input rectification (soft start) and these products are designed to be used with International Rectifier input diodes, switches and output rectifiers which are available in identical package outlines.

**Major Ratings and Characteristics**

Characteristics	40TPS..	Units
$I_{T(AV)}$ Sinusoidal waveform	35	A
$I_{RMS}$	55	A
$V_{RRM}/V_{DRM}$ Range	800 - 1200	V
$I_{TSM}$	500	A
$V_T @ 40A, T_J = 25^\circ C$	1.45	V
dv/dt	1000	V/ $\mu s$
di/dt	100	A/ $\mu s$
$T_J$	-40 to 125	°C

**Package Outline**



Voltage Ratings

Part Number	$V_{RRM}/V_{DRM}$ , max. repetitive peak and off-state voltage V	$V_{RSM}$ , maximum non repetitive peak reverse voltage V	$I_{RRM}/I_{DRM}$ 125°C mA
40TPS08	800	900	10
40TPS12	1200	1300	

Absolute Maximum Ratings

Parameters	40TPS..	Units	Conditions	
$I_{T(AV)}$ Max. Average On-state Current	35	A	@ $T_C = 79^\circ\text{C}$ , 180° conduction half sine wave	
$I_{T(RMS)}$ Max. Continuous RMS On-state Current As AC switch	55			
$I_{TSM}$ Max. Peak One Cycle Non-Repetitive Surge Current	500	A	10ms Sine pulse, rated $V_{RRM}$ applied	Initial $T_J = T_J \text{ max.}$
	600		10ms Sine pulse, no voltage reapplied	
$I^2t$ Max. $I^2t$ for Fusing	1250	A <sup>2</sup> s	10ms Sine pulse, rated $V_{RRM}$ applied	
	1760		10ms Sine pulse, no voltage reapplied	
$I^2\sqrt{t}$ Max. $I^2\sqrt{t}$ for Fusing	12500	A <sup>2</sup> √s	t = 0.1 to 10ms, no voltage reapplied	
$V_{T(TO)1}$ Low Level Value of Threshold Voltage	1.02	V	$T_J = 125^\circ\text{C}$	
$V_{T(TO)2}$ High Level Value of Threshold Voltage	1.23			
$r_{t1}$ Low Level Value of On-state Slope Resistance	9.74	mΩ		
$r_{t2}$ High Level Value of On-state Slope Resistance	7.50			
$V_{TM}$ Max. Peak On-state Voltage	1.85	V	@ 110A, $T_J = 25^\circ\text{C}$	
$di/dt$ Max. Rate of Rise of Turned-on Current	100	A/μs	$T_J = 25^\circ\text{C}$	
$I_H$ Max. Holding Current	150	mA		
$I_L$ Max. Latching Current	300			
$I_{RRM}/I_{DRM}$ Max. Reverse and Direct Leakage Current	0.5 10	mA	$T_J = 25^\circ\text{C}$	$V_R = \text{rated } V_{RRM}/V_{DRM}$
			$T_J = 125^\circ\text{C}$	
$dv/dt$ Max. Rate of Rise of Off-state Voltage	40TPS08	500	V/μs	$T_J = T_J \text{ max.}, \text{ linear to } 80\% V_{DRM}, R_g\text{-k} = \text{open}$
	40TPS12			

### Triggering

Parameters	40TPS..	Units	Conditions	
$P_{GM}$ Max. peak Gate Power	10	W		
$P_{G(AV)}$ Max. average Gate Power	2.5			
$I_{GM}$ Max. peak Gate Current	2.5	A		
$-V_{GM}$ Max. peak negative Gate Voltage	10	V	$T_J = -40^{\circ}\text{C}$	Anode supply = 6V resistive load
$V_{GT}$ Max. required DC Gate Voltage to trigger	4.0		$T_J = 25^{\circ}\text{C}$	
	2.5		$T_J = 125^{\circ}\text{C}$	
	1.7			
$I_{GT}$ Max. required DC Gate Current to trigger	270	mA	$T_J = -40^{\circ}\text{C}$	
	150		$T_J = 25^{\circ}\text{C}$	
	80		$T_J = 125^{\circ}\text{C}$	
	40		$T_J = 25^{\circ}\text{C}$ , for 40TPS08A and 40TPS12A	
$V_{GD}$ Max. DC Gate Voltage not to trigger	0.25	V	$T_J = 125^{\circ}\text{C}$ , $V_{DRM}$ = rated value	
$I_{GD}$ Max. DC Gate Current not to trigger	6	mA		

### Thermal-Mechanical Specifications

Parameters	40TPS..	Units	Conditions	
$T_J$ Max. Junction Temperature Range	- 40 to 125	°C		
$T_{stg}$ Max. Storage Temperature Range	- 40 to 125			
$R_{thJC}$ Max. Thermal Resistance Junction to Case	0.6	°C/W	DC operation	
$R_{thJA}$ Max. Thermal Resistance Junction to Ambient	40			
$R_{thCS}$ Max. Thermal Resistance Case to Heatsink	0.2		Mounting surface, smooth and greased	
wt Approximate Weight	6 (0.21)	g (oz.)		
T Mounting Torque	Min.	6 (5)	Kg-cm (lbf-in)	
	Max.	12 (10)		
Case Style	TO-247AC			

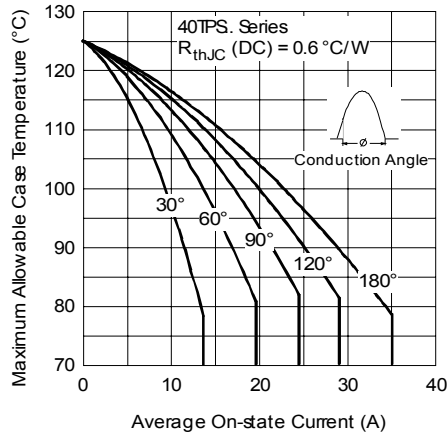


Fig. 1 - Current Rating Characteristics

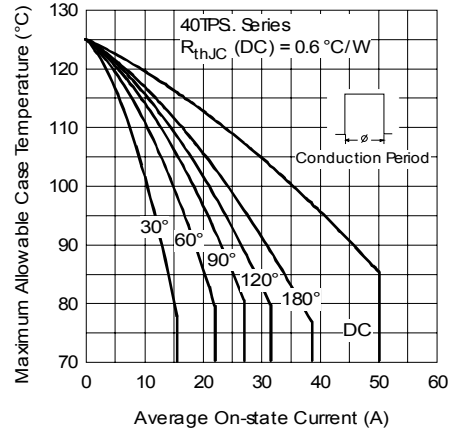


Fig. 2 - Current Rating Characteristics

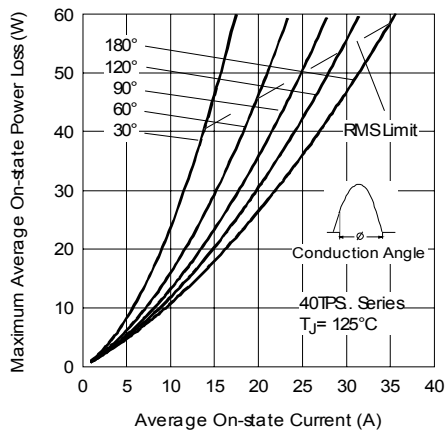


Fig. 3 - On-state Power Loss Characteristics

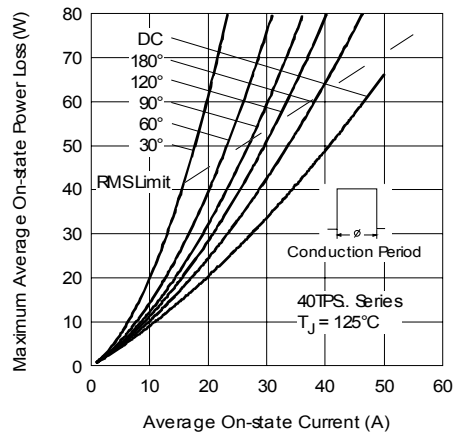


Fig. 4 - On-state Power Loss Characteristics

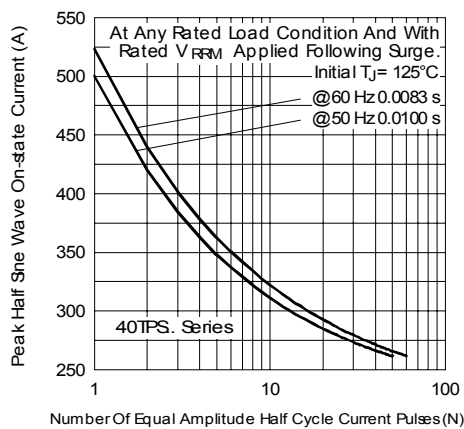


Fig. 5 - Maximum Non-Repetitive Surge Current

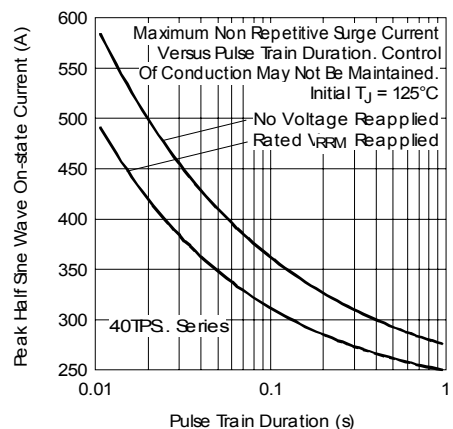


Fig. 6 - Maximum Non-Repetitive Surge Current

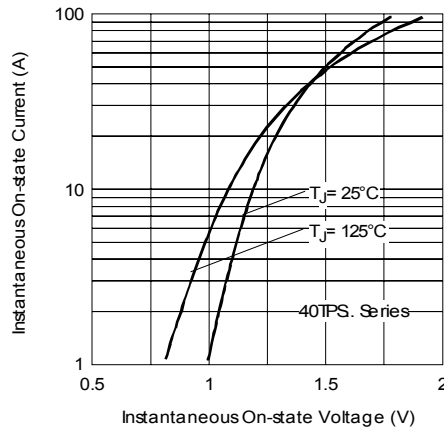


Fig. 7 - On-state Voltage Drop Characteristics

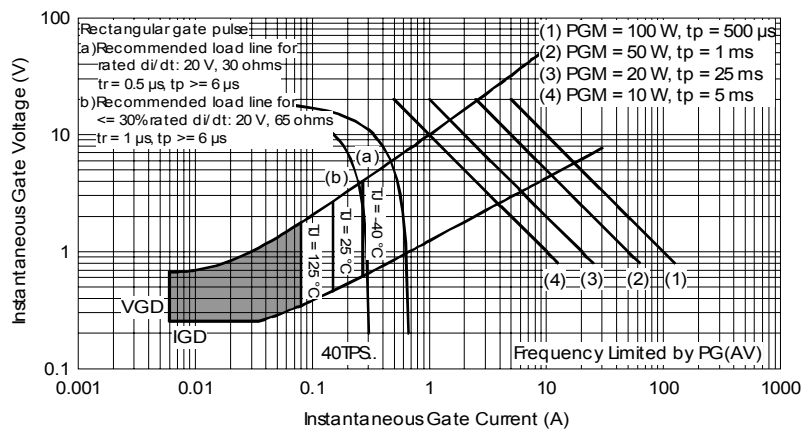


Fig. 8 - Gate Characteristics

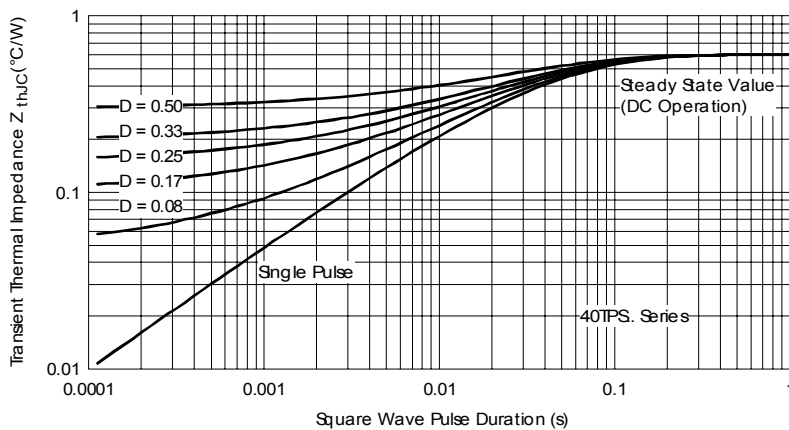
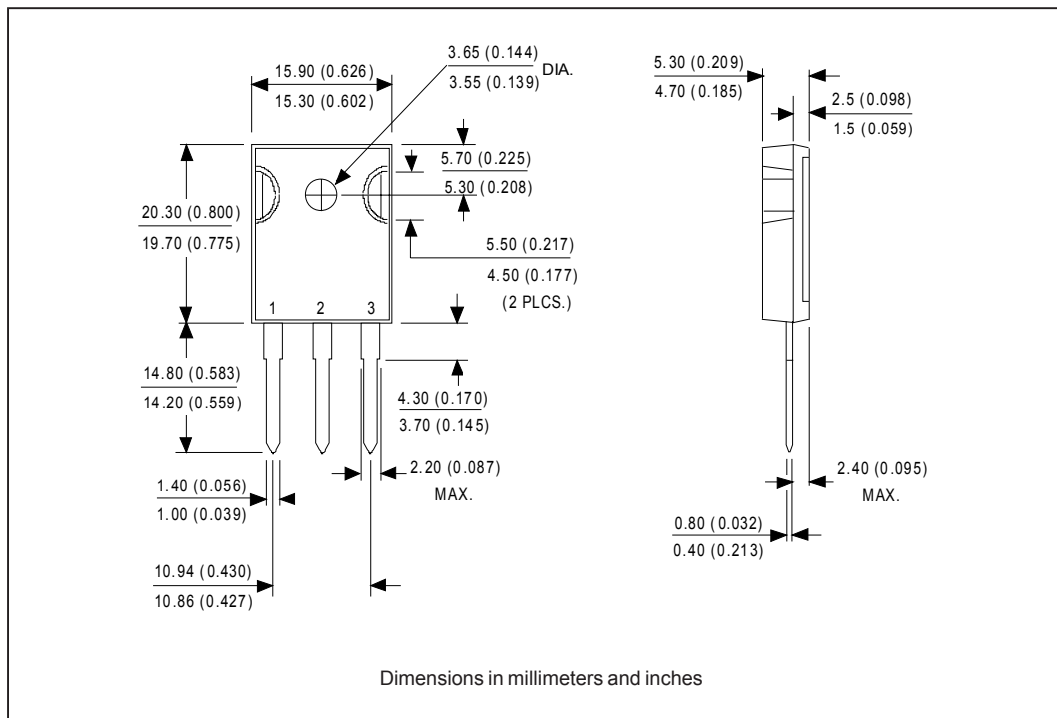
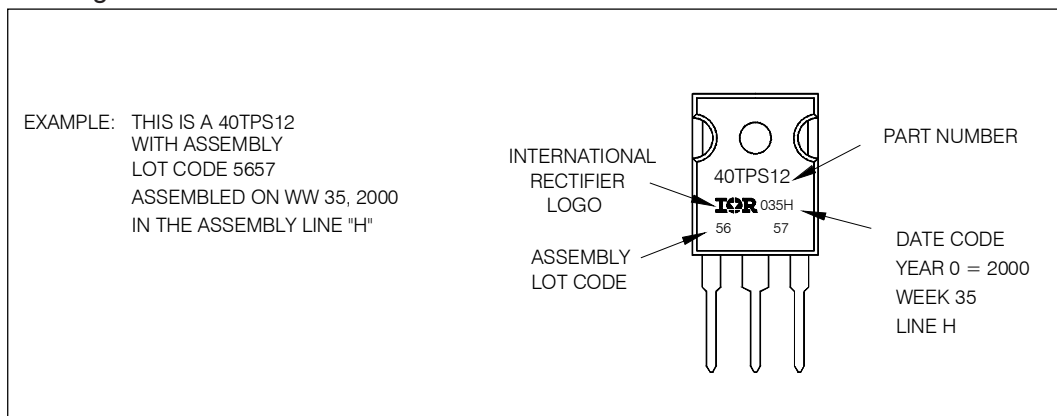


Fig. 9 - Thermal Impedance  $Z_{thJC}$  Characteristics

Outline Table



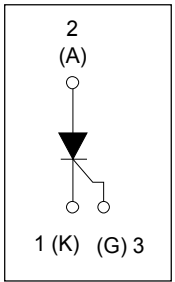
Marking Information



Ordering Information Table

Device Code					
40	T	P	S	12	
①	②	③	④	⑤	⑥

<p><b>1</b> - Current Rating</p> <p><b>2</b> - Circuit Configuration: T = Thyristor</p> <p><b>3</b> - Package: P = TO-247</p> <p><b>4</b> - Type of Silicon: S = Standard Recovery Rectifier</p> <p><b>5</b> - Voltage code: Code x 100 = <math>V_{RRM}</math></p> <p><b>6</b> - None = Standard Igt selection A = Low Igt selection 40mA max. for 40TPS08A and 40TPS12A</p>		<table border="1"> <tr> <td>08 = 800V</td> </tr> <tr> <td>12 = 1200V</td> </tr> </table>	08 = 800V	12 = 1200V
08 = 800V				
12 = 1200V				

Data and specifications subject to change without notice.  
 This product has been designed and qualified for Industrial Level.  
 Qualification Standards can be found on IR's Web site.