Phase Control SCR, 70 A

Super-247

DESCRIPTION/FEATURES

The 70TPS.. High Voltage Series of silicon controlled rectifiers are specifically designed for high and medium power switching and phase control applications.

Typical applications are in input rectification (soft start) or AC-switches or high current crow-bar as well as others phase-control circuits.

These products are designed to be used with Vishay HPP input diodes, switches and output rectifiers which are available in identical package outlines.

This product has been designed and qualified for industrial level.

PRODUCT SUMMARY	
V_T at 100 A	< 1.4 V
I_{TSM}	1400 A
V_{RRM}	1200/1600 V

MAJOR RATINGS AND CHARACTERISTICS			
PARAMETER	**TEST CONDITIONS**	**VALUES**	**UNITS**
$I_{T(AV)}$	Sinusoidal waveform	70	A
I_{RMS}	Lead current limitation	75	
V_{RRM}/V_{DRM}	Range	1200/1600	V
I_{TSM}		1400	A
V_T	100 A, T_J = 25 °C	1.4	V
dV/dt		500	V/µs
dI/dt		150	A/µs
T_J		- 40 to 125	°C

VOLTAGE RATINGS			
PART NUMBER	**V_{RRM}/V_{DRM}, MAXIMUM REPETITIVE PEAK AND OFF-STATE VOLTAGE V**	**V_{RSM}, MAXIMUM NON-REPETITIVE PEAK REVERSE VOLTAGE V**	**I_{RRM}/I_{DRM} AT 125 °C mA**
70TPS12	1200	1300	15
70TPS16	1600	1700	

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum average on-state current	$I_{T(AV)}$	T_C = 82 °C, 180° conduction half sine wave		70	A
Maximum continuous RMS on-state current as AC switch	$I_{T(RMS)}$	Lead current limitation		75	
Maximum peak, one-cycle non-repetitive surge current	I_{TSM}	10 ms sine pulse, rated V_{RRM} applied	Initial $T_J = T_J$ maximum	1200	
		10 ms sine pulse, no voltage reapplied		1400	
Maximum I^2t for fusing	I^2t	10 ms sine pulse, rated V_{RRM} applied		7200	A^2s
		10 ms sine pulse, no voltage reapplied		10 200	
Maximum $I^2\sqrt{t}$ for fusing	$I^2\sqrt{t}$	t = 0.1 to 10 ms, no voltage reapplied		102 000	$A^2\sqrt{s}$
Low level value of threshold voltage	$V_{T(TO)1}$	T_J = 125 °C		0.916	V
High level value of threshold voltage	$V_{T(TO)2}$			1.21	
Low level value of on-state slope resistance	r_{t1}			4.138	mΩ
High level value of on-state slope resistance	r_{t2}			3.43	
Maximum peak on-state voltage	V_{TM}	100 A, T_J = 25 °C		1.4	V
Maximum rate of rise of turned-on current	dI/dt	T_J = 25 °C		150	A/µs
Maximum holding current	I_H	T_J = 25 °C		200	mA
Maximum latching current	I_L			400	
Maximum reverse and direct leakage current	I_{RRM}/I_{DRM}	T_J = 25 °C	V_R = Rated V_{RRM}/V_{DRM}	1.0	
		T_J = 125 °C		15	
Maximum rate of rise of off-state voltage	dV/dt	T_J = 125 °C		500	V/µs

TRIGGERING

PARAMETER	SYMBOL	TEST CONDITIONS		VALUES	UNITS
Maximum peak gate power	P_{GM}	T = 30 µs		10	W
Maximum average gate power	$P_{G(AV)}$			2.5	
Maximum peak gate current	I_{GM}			2.5	A
Maximum peak negative gate voltage	- V_{GM}			10	V
Maximum required DC gate voltage to trigger	V_{GT}	T_J = - 40 °C	Anode supply = 6 V resistive load	4.0	
		T_J = 25 °C		1.5	
		T_J = 125 °C		1.1	
Maximum required DC gate current to trigger	I_{GT}	T_J = - 40 °C		270	mA
		T_J = 25 °C		100	
		T_J = 125 °C		80	
Maximum DC gate voltage not to trigger	V_{GD}	T_J = 120 °C, V_{DRM} = Rated value		0.25	V
Maximum DC gate current not to trigger	I_{GD}			6	mA

THERMAL AND MECHANICAL SPECIFICATIONS					
PARAMETER		**SYMBOL**	**TEST CONDITIONS**	**VALUES**	**UNITS**
Maximum junction temperature range		T_J		- 40 to 125	°C
Maximum storage temperature range		T_{Stg}		- 40 to 150	
Maximum thermal resistance, junction to case		R_{thJC}	DC operation	0.27	°C/W
Maximum thermal resistance, junction to ambient		R_{thJA}		40	
Typical thermal resistance, case to heatsink		R_{thCS}	Mounting surface, smooth and greased	0.2	
Approximate weight				6	g
				0.21	oz.
Mounting torque	minimum			6 (5)	kgf · cm (lbf · in)
	maximum			12 (10)	
Marking device			Case style Super-247	70TPS12	
				70TPS16	

$\Delta R_{thJ\text{-}hs}$ CONDUCTION PER JUNCTION											
DEVICE	**SINE HALF WAVE CONDUCTION**					**RECTANGULAR WAVE CONDUCTION**					**UNITS**
	180°	**120°**	**90°**	**60°**	**30°**	**180°**	**120°**	**90°**	**60°**	**30°**	
70TPS	0.078	0.092	0.117	0.172	0.302	0.053	0.092	0.125	0.180	0.306	°C/W

Note

- The table above shows the increment of thermal resistance $R_{thJ\text{-}hs}$ when devices operate at different conduction angles than DC

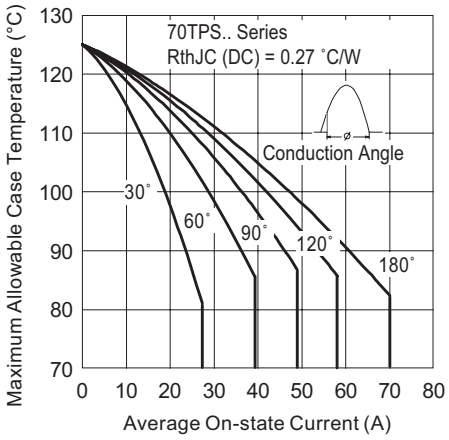


Fig. 1 - Current Rating Characteristics

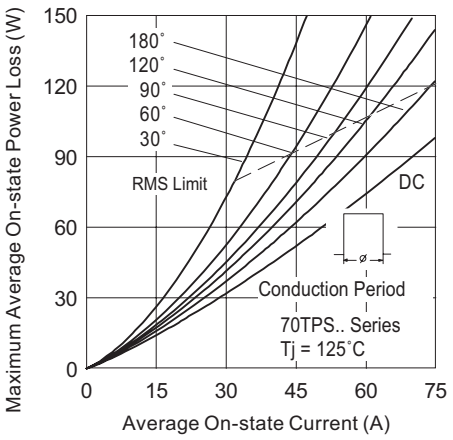


Fig. 4 - On-State Power Loss Characteristics

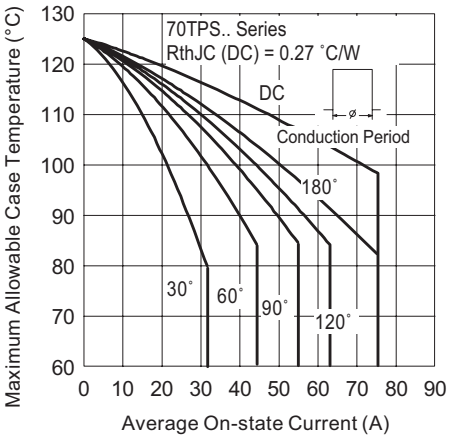


Fig. 2 - Current Rating Characteristics

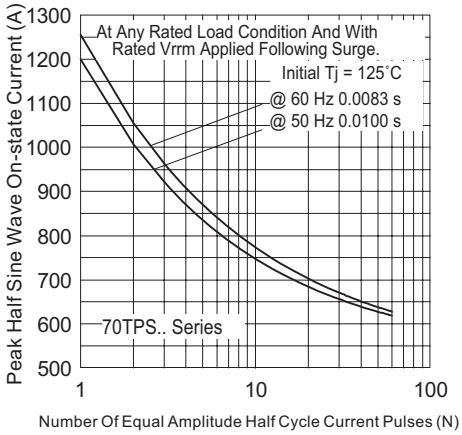


Fig. 5 - Maximum Non-Repetitive Surge Current

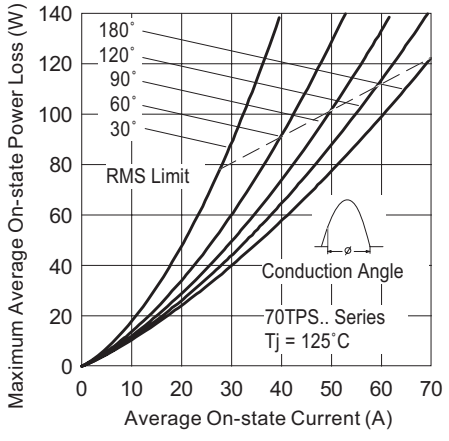


Fig. 3 - On-State Power Loss Characteristics

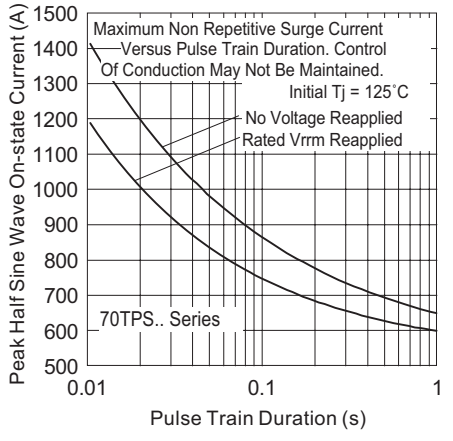


Fig. 6 - Maximum Non-Repetitive Surge Current

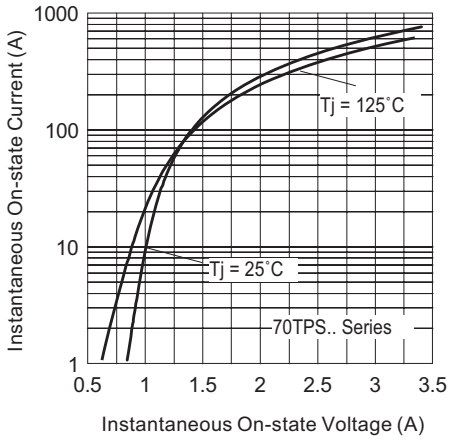


Fig. 7 - On-State Voltage Drop Characteristics

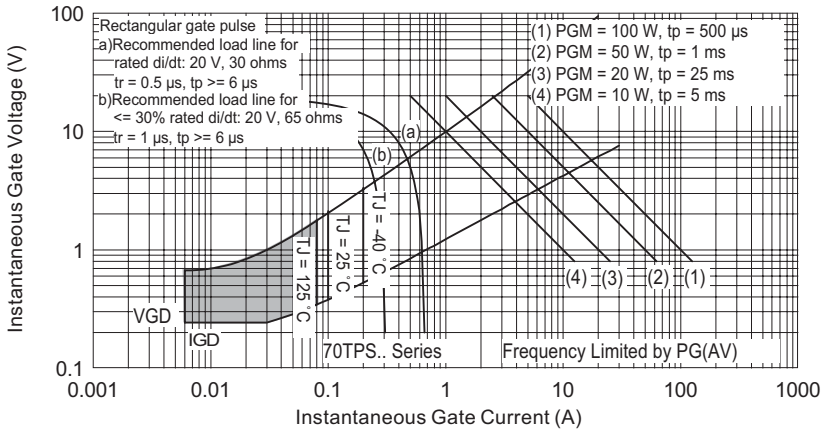


Fig. 8 - Gate Characteristics

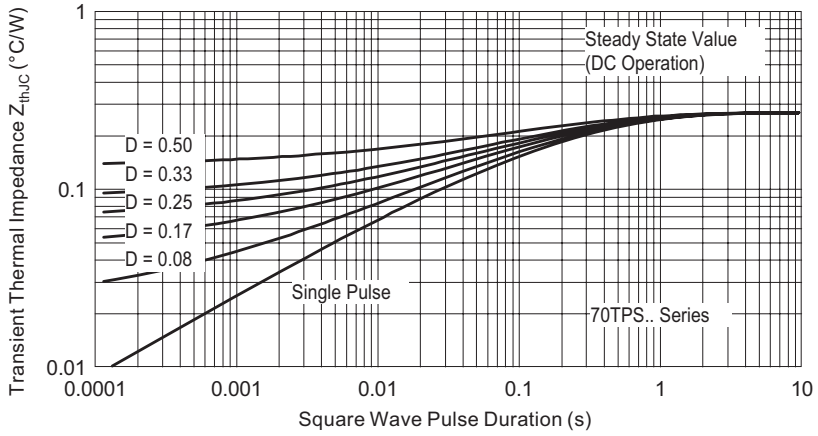


Fig. 9 - Thermal Impedance Z_{thJC} Characteristics

ORDERING INFORMATION TABLE

Device code

70	T	P	S	16	-
1	2	3	4	5	6

- **1** - Current rating (70 = 70 A)
- **2** - Circuit configuration:
  T = Thyristor
- **3** - Package:
  P = Super-247
- **4** - Type of silicon:
  S = Standard recovery rectifier
- **5** - Voltage code x 100 = V_{RRM} (12 = 1200 V, 16 = 1600 V)
- **6** - • None = Standard production
  • PbF = Lead (Pb)-free

LINKS TO RELATED DOCUMENTS	
Dimensions	http://www.vishay.com/doc?95073
Part marking information	http://www.vishay.com/doc?95070

Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.

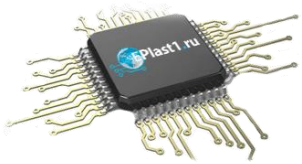
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)
Факс: 8 (812) 320-02-42
Электронная почта: org@eplast1.ru
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.