



德微科技股份有限公司
Eris Technology Corporation



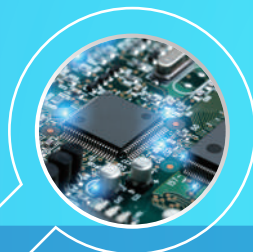
亞昕科技股份有限公司
YEA SHIN TECHNOLOGY CO., LTD

Thyristor Introduction

Professional Discrete Semiconductor Manufacturer

分離式元件供應商

Stock Code:3675



Website : www.eris.com.tw/index.php



Thyristor Family

Device SCRs TRIACs TSPD SIDAC

Characteristic

"Sturdy and economical high-pressure switch"

"Suitable for discharge applications and the generation of damping sinusoidal oscillations with fast high-voltage FDA avalanche diodes."

"Peak Current Capability"

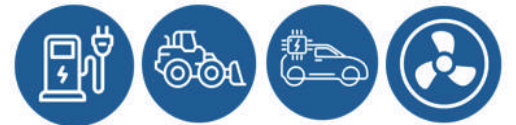
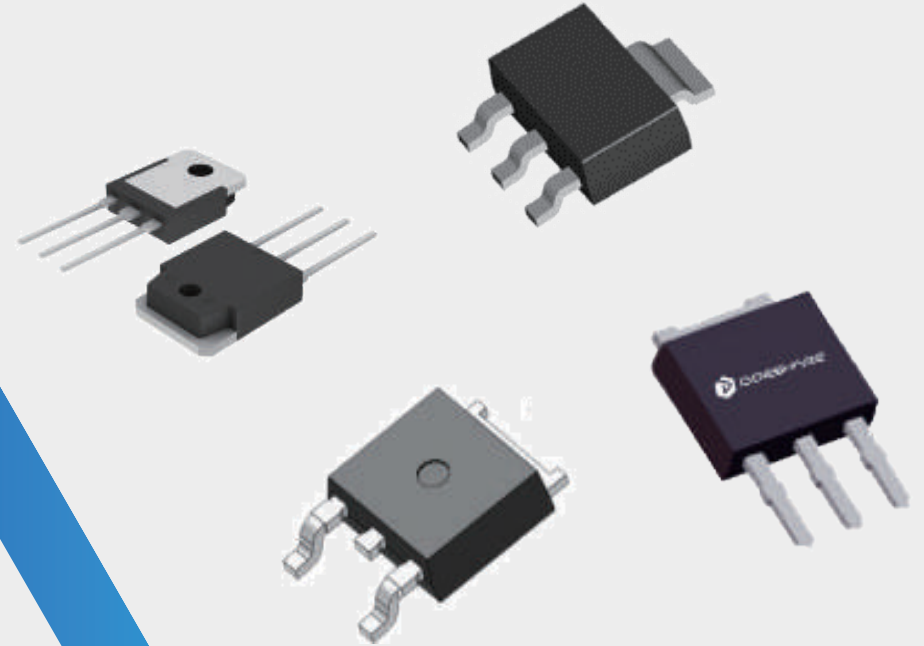
"Extremely high di/dt , unaffected by large currents, ensuring reliability and expected lifespan"

"The number of individual SCRs with separate gate drive."

"Highly resistant to overload"

"Easily triggered by a simple TTL trigger pulse (2-5V)."

"Very compact and lightweight"



Energy Efficiency & Enhanced Reliability



Application in Power Rating / Frequency



THYRISTOR

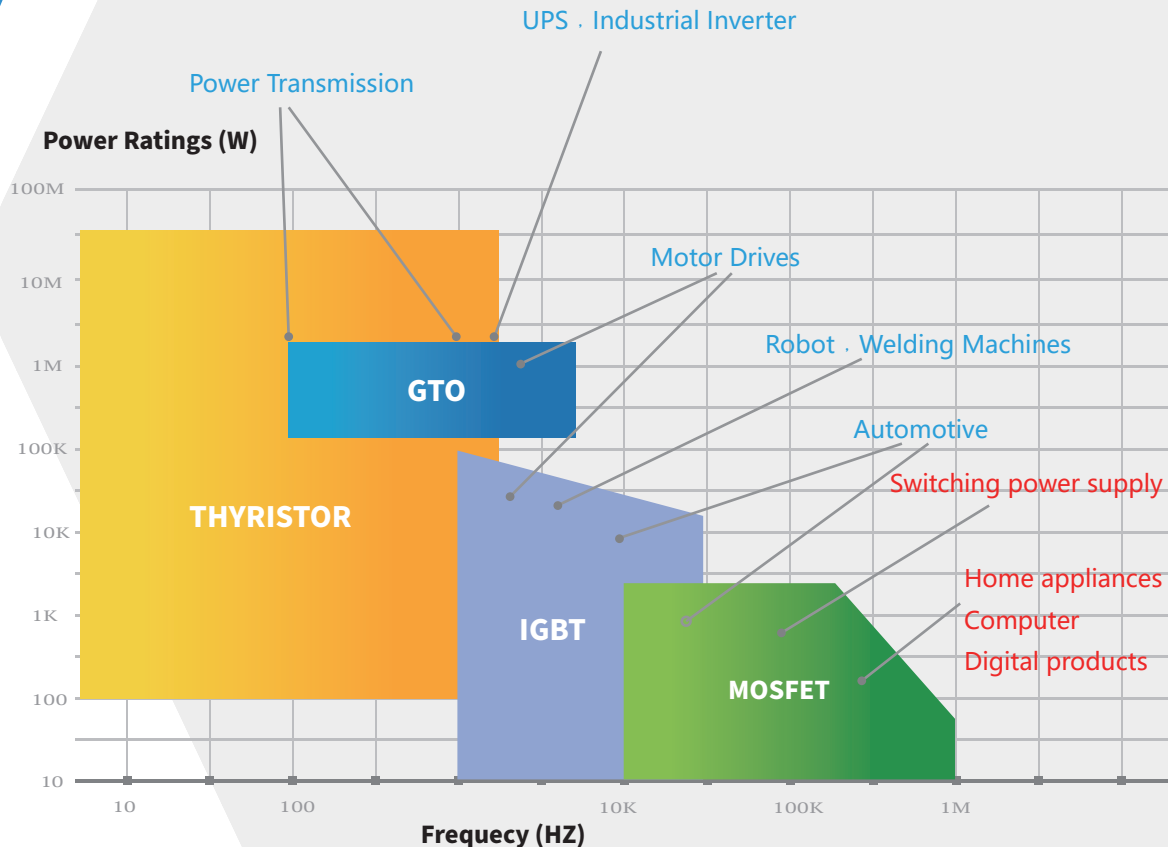
- AC Switch
- High power
- Low Switch Frequency

IGBT

- DC Switch
- Middle power
- Middle Switch Frequency

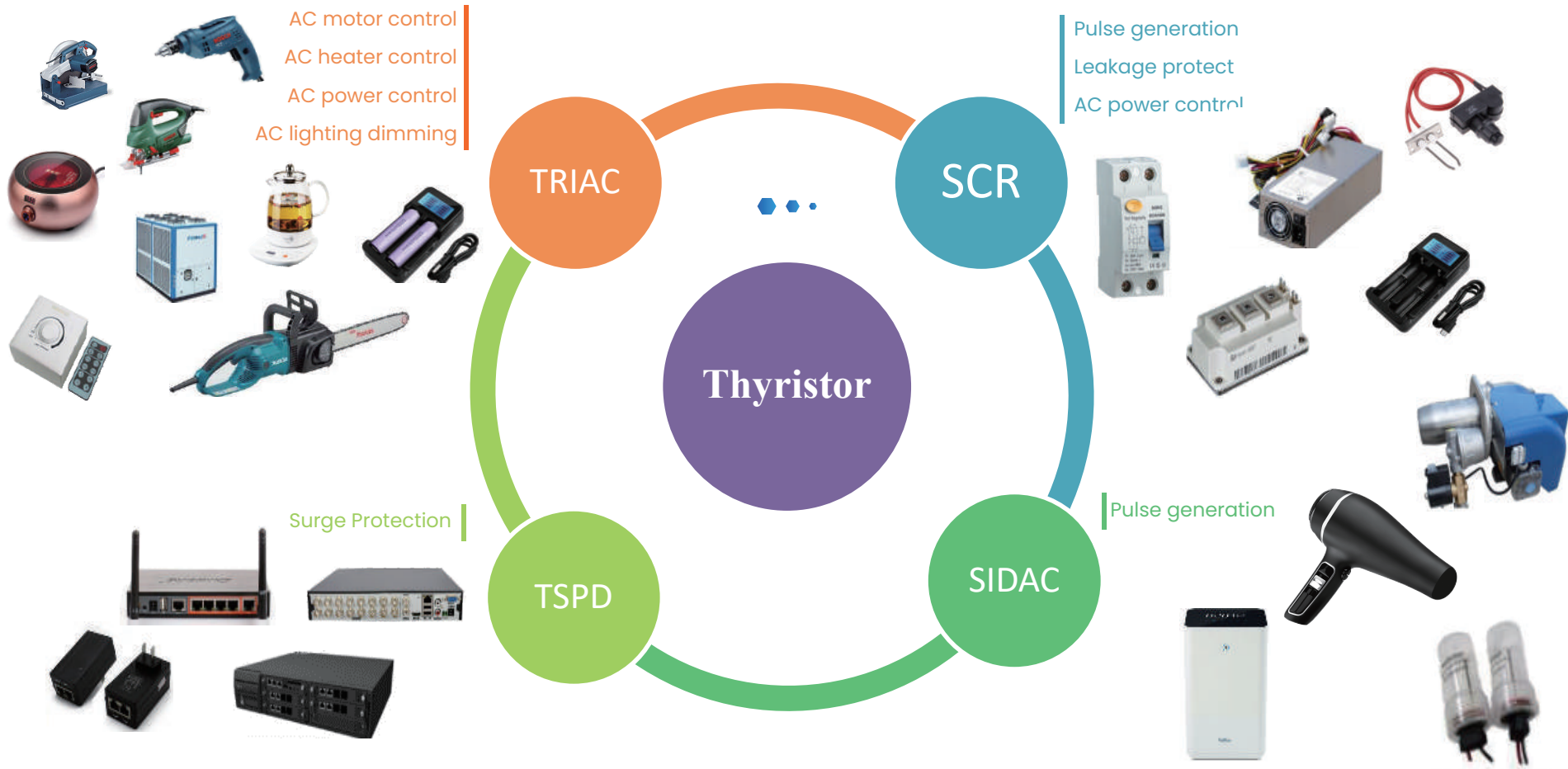
MOSFET

- DC Switch
- Low power
- High switch Frequency





Application & Uses of Thyristors and SCR





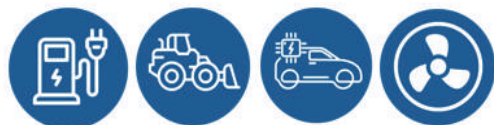
Thyristor – SCR

Feature: ●●●

- 1.Sensitive Gate Allows Triggering by Microcontrollers and Other Logic Circuits
- 2.Blocking Voltage to 600 Volts
- 3.On-State Current Rating of 0.8 Amperes RMS at 80°C
- 4.High Surge Current Capability – 10 Amperes
- 5.Minimum and Maximum Values of IGT, VGT and IH Specified for Ease of Design
- 6.Immunity to dV/dt – 20 V/us Minimum at $T_J=110^\circ\text{C}$
- 7.Glass-Passivated Surface for Reliability and Uniformity
- 8.Pb-Free Package
- 9.TO-92 package

Application ●●●

- 1.Leakage current protection system
- 2.Power controller
- 3.UPS
- 4.Negative ion generator
- 5.Server power
- 6.Motor control circuits
- 7.Overvoltage crowbar protection



Energy Efficiency & Enhanced Reliability

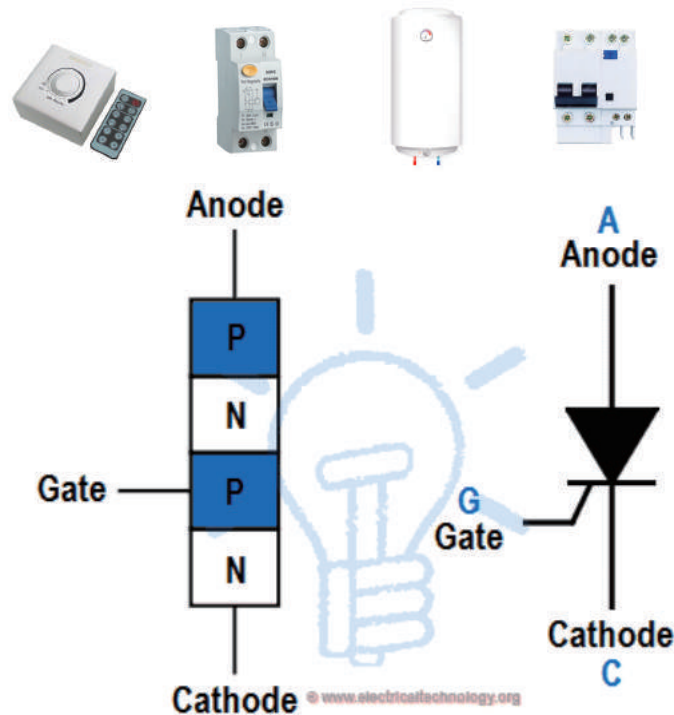
Electric Water Heater

LED Dimmer

AC power control

應用範圍:電子點火裝置- 摩托車/汽艇/ 瓦斯爐/熱水器

燈光照明設備-照相；攝影機閃光燈/聖誕燈/螢光燈管啟動器。
工業資訊週邊-電焊機/漏電斷路器/電源供應器過電流保護/
伺服器(Server)/轉接器/AC Adapter)



Thyristor (SCR) Structure & Symbol



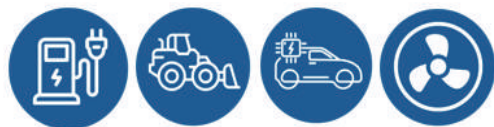
Thyristor – TRIAC

Feature: ●●●

- 1.Blocking voltage to 600V, 800V
- 2.High Surge Current Capability
- 3.Uniform Gate Trigger Currents in Three Quadrants / Four Quadrants (base on different device)
- 4.Glass-Passivated Surface for Reliability and Uniformity
- 5.Lead-Free Finish; RoHS Compliant
- 6.Halogen and Antimony Free. "Green" Device
- 7.TO-220 package

Application ●●●

- 1.Fan motor
- 2.Industry
- 3.Smart home appliance
- 4.Light Dimmers
- 5.Power Supply Equipment
- 6.Server power
- 7.Electrical tools
- 8.Ignition Circuit



Energy Efficiency & Enhanced Reliability

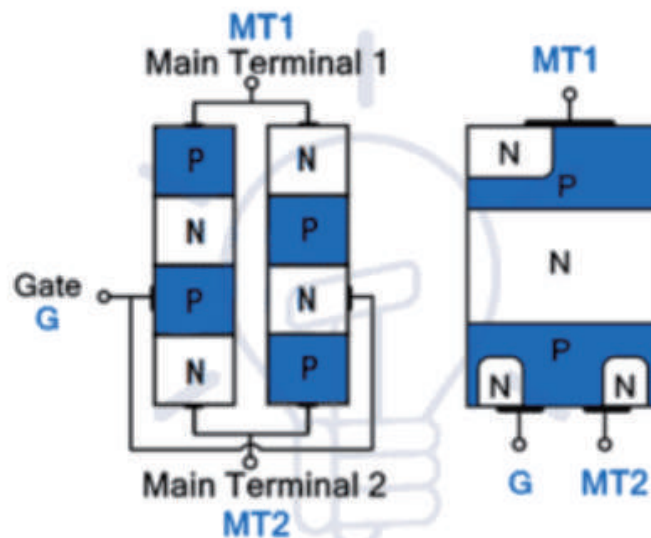
應用範圍:交流電源開關控制/負載功率調整

家電設備- 洗衣機/洗碗機/電風扇/電熱水器/吸塵器....。

工業裝置-摩托車/汽艇/瓦斯爐/熱水器。

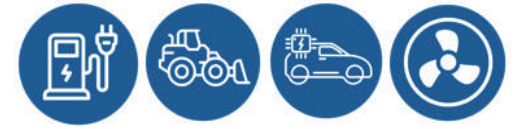
燈光照明設備-照相；攝影機閃光燈/聖誕燈/螢光燈管啟動器。

工業資訊週邊-電焊機/漏電斷路器/電源供應器過電流保護/伺服器/轉接器





Thyristor – TSPD



Energy Efficiency & Enhanced Reliability

Feature: ●●●

- 1.SMB package
- 2.Glass Passivated Junction
- 3.Bidirectional Protection In a Single Device
- 4.High Peak Pulse Current
- 5.Lead Free Finish/RoHS Compliant

Application ●●●

- 1.Power tools
- 2.Kitchen and home appliances
- 3.Motor controls
- 4.Industrial motors
- 5.Instrumentation

Benefit ●●●

- 1.high surge current rating
- 2.Low capacitance
- 3.High Off-State impedance and Low On-State Voltage

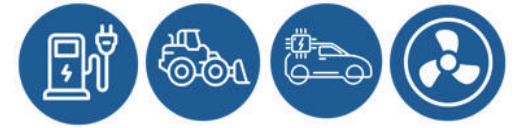


Surge protection





Thyristor – SIDAC



Energy Efficiency & Enhanced Reliability

Feature: ●●●

- 1.AEC-Q101 Qualify
- 2.High pulse current capability
- 3.Glass passivation insures reliable operation
- 4.Dynamic Holding Current 50mA
- 5.Compact package, SOT-23 package

Application ●●●

- 1.Anion generators
- 2.Pulse generating
- 3.HID igniter
- 4.Gas igniter

Benefit ●●●

- 1.high surge current rating
- 2.Low capacitance
- 3.High Off-State impedance and Low On-State Voltage



Pulse generation



Thyristor TRIAC 0.8A~40A

Thyristor	Part Number	Die Size (mil)	Dice / Wafer	IGT (max mA)	VDRM/VRRM (V)	Operation Temp (°C)	IT (A)		IH (max mA)		IL (max mA)		
							25°C		I	III	I	II	III
TRIAC	TTTP808WFTx	42	6055	5 / 5 / 5	800/800	-40~125	0.8		5	5	10	10	10
TRIAC	TTT0108WGTx-48	48	4576	10 / 10 / 10	800/800	-40~125	1		10	10	25	25	25
TRIAC	TTT0408WGTx-76	76	1816	10 / 10 / 10	800/800	-40~150	4		10	10	20	30	20
TRIAC	TTT0608WGTx	84	1476	10 / 10 / 10	800/800	-40~150	6		10	10	30	30	30
TRIAC	TTT1208WGTx	102	968	10 / 10 / 10	800/800	-40~150	12		10	10	20	30	20
TRIAC	TTT1208WLTx	102	968	35 / 35 / 35	800/800	-40~150	12		50	50	50	60	50
TRIAC	TTT1208WGTx	116	736	10 / 10 / 10	800/800	-40~150	12		10	10	20	30	20
TRIAC	TTT1208WLTx	116	736	35 / 35 / 35	800/800	-40~150	12		50	50	50	60	50
TRIAC	TTT1608WGTx	145	480	10 / 10 / 10	800/800	-40~150	16		10	10	25	25	25
TRIAC	TTT1608WLTx	145	480	35 / 35 / 35	800/800	-40~150	16		40	40	50	80	50
TRIAC	TTT2008WLTx	165	364	35 / 35 / 35	800/800	-40~150	20		50	50	50	80	50
TRIAC	TTT2008WMTx	165	364	50 / 50 / 50	800/800	-40~150	20		50	50	50	80	50
TRIAC	TTT2508WLTx	150x220	299	35 / 35 / 35	800/800	-40~150	25		50	50	50	80	50
TRIAC	TTT2508WMTx	150x220	299	50 / 50 / 50	800/800	-40~150	25		50	50	50	80	50
TRIAC	TTT4008WLTx	250	146	35 / 35 / 35	800/800	-40~125	40		50	50	50	80	50
TRIAC	TTT4008WMTx	250	146	50 / 50 / 50	800/800	-40~125	40		50	50	50	80	50

Thyristor SCR 0.5A~4A

Thyristor	Part Number	Die Size (mil)	Dice / Wafer	IGT (max uA)	V _{DRM} /V _{RRM} (V)	Operation Temp (°C)	IT (A)	IH (max mA)	IL (max mA)
							25°C		
SCR	STT2535WBx	35	8466	50	600/600	-40~125	0.5	5	10
SCR	STT2535WCx	35	8466	100	600/600	-40~125	0.5	5	10
SCR	STK0104WAx	42	5656	25	600/600	-40~125	0.8	5	10
SCR	STK0104WDx	42	5656	200	600/600	-40~125	0.8	5	10
SCR	STK0107WBx	42	5656	50	600/600	-40~125	0.8	5	10
SCR	STK0107WDx	42	5656	200	600/600	-40~125	0.8	5	10
SCR	STK0109WCx	42	5656	100	900/900	-40~125	0.8	5	10
SCR	STN0206WDx	48	4360	200	600/600	-40~125	1	3	5
SCR	STT0407WCx	70	2076	100	700/700	-40~125	4	5	10
SCR	STT0407WDx	70	2076	200	700/700	-40~125	4	5	10
SCR	SMT0408WCx	70	2166	100	800/800	-40~125	4	5	10

Thyristor TSPD Surge 30~100A

Part Number	Surge Rating (A)	Off-State Capacitance C _o (pF)	Rated Repetitive Off-State Voltage V _{DRM} (V)	Off-State Leakage Current @ V _{DRM} (μA)	On-State Voltage @ I _T = 1A V _T (V)	Breakover Current I _{BO} Min (mA)	Breakover Current I _{BO} Max (mA)	Holding Current I _H Min (mA)	Holding Current I _H Max (mA)	Packages
TB0640H	100	200	58	5	3.5	50	800	150	800SMB	
TB0640L	30	100	58	5	3.5	50	800	150	800SMB	
TB0640M	50	140	58	5	3.5	50	800	150	800SMB	
TB0720H	100	200	65	5	3.5	50	800	150	800SMB	
TB0720L	30	100	65	5	3.5	50	800	150	800SMB	
TB0720M	50	140	65	5	3.5	50	800	150	800SMB	
TB0900H	100	200	75	5	3.5	50	800	150	800SMB	
TB0900L	30	100	75	5	3.5	50	800	150	800SMB	
TB0900M	50	140	75	5	3.5	50	800	150	800SMB	
TB1100H	100	120	90	5	3.5	50	800	150	800SMB	
TB1100L	30	60	90	5	3.5	50	800	150	800SMB	
TB1100M	50	90	90	5	3.5	50	800	150	800SMB	
TB1300H	100	120	120	5	3.5	50	800	150	800SMB	
TB1300L	30	60	120	5	3.5	50	800	150	800SMB	
TB1300M	50	90	120	5	3.5	50	800	150	800SMB	
TB1500H	100	120	140	5	3.5	50	800	150	800SMB	
TB1500L	30	60	140	5	3.5	50	800	150	800SMB	
TB1500M	50	90	140	5	3.5	50	800	150	800SMB	
TB1800H	100	120	160	5	3.5	50	800	150	800SMB	
TB1800L	30	60	160	5	3.5	50	800	150	800SMB	
TB1800M	50	90	160	5	3.5	50	800	150	800SMB	
TB2300H	100	80	190	5	3.5	50	800	150	800SMB	
TB2300L	30	40	190	5	3.5	50	800	150	800SMB	
TB2300M	50	60	190	5	3.5	50	800	150	800SMB	
TB2600H	100	80	220	5	3.5	50	800	150	800SMB	
TB2600L	30	40	220	5	3.5	50	800	150	800SMB	
TB2600M	50	60	220	5	3.5	50	800	150	800SMB	
TB3100H	100	80	275	5	3.5	50	800	150	800SMB	
TB3100L	30	40	275	5	3.5	50	800	150	800SMB	
TB3100M	50	60	275	5	3.5	50	800	150	800SMB	
TB3500H	100	80	320	5	3.5	50	800	150	800SMB	
TB3500L	30	40	320	5	3.5	50	800	150	800SMB	
TB3500M	50	60	320	5	3.5	50	800	150	800SMB	

Summary of Thyristor Specifications

	IT	SOT-223	TO-92	TO-126	TO-220F	TO-220	ITO-220	DKPAK	D2PAK	TO-3P	ITO-3P
TRIAC	1A	800V/1KV	800V/1KV								
	2A			800V/1KV	800V/1KV						
	4A				800V	800V	1KV	800V/1KV			
	8A			800V	800V	800V	800V	800V			
	12A				800V	800V	800V	800V			
	16A				800V	800V	800V		800V		
	25A					800V	800V		800V		
40A								800V	800V	800V	

	IT	SOT-23	SOT-89	SOT-223	TO-92	TO-126	DKPAK	TO-220
SCR	0.25A	600V/800V						
	0.8A		600V/800V	600V/800V	600V/800V			
	1A			800V/1000V	800V/1000V			
	2A			800V	800V			
	4A					800V	800V	
	8A						800V	800V
	12A						800V	800V
16A						800V	800V	

	IT	SOD-123	T-1	SMA	DO-15
SIDAC	0.3A	105V			
	0.6A		105V	105V	
	1A			150V / 220V / 240V	120V / 210V / 225V

	<50pF (Low Cj)	SMAF	SMA	SMBF	SMB	Remarks
TSPD(TSS)	40pF	190-430V	190-430V			VDRM:
	50pF			190-430V	190-430V	18-75V: 18V/58V/65V/75V
	60pF	95-160V	95-160V			58-75V: 58V/65V/75V
	70pF			95-160V	95-160V	95-160V: 95V/120V/140V/160V
	100pF	18-75V	18-75V	18V	18V	190-430V:
	120pF			58-75V	58-75V	190V/220V/275V/320V/390V/430V

Thank you

www.eris.com.tw



德微科技股份有限公司
Eris Technology Corporation