

# Thyristors

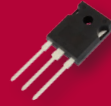
High Voltage (Up to 1600 V)

12...25TTS in TO-220 and D<sup>2</sup>PAK



High Voltage (Up to 1600 V)

40TPS / 50TPS Series



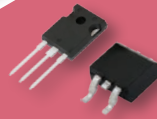
High Voltage (Up to 1600 V)

ST230 Series



AEC-Q101 Thyristors for Automotive Applications

AEC-Q101 THYRISTORS



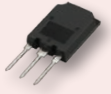
High Voltage (Up to 1600 V)

16...25TTS in TO-220 FullPAK



High Current (Up to 70 A)

70TPS Series



1650 A, 2000 V

ST1200 Series










330 A, Up to 2000 V









ST330S Series








# THYRISTORS

## Focus Products

Glass Passivated Thyristors in TO-220 and TO-220 FullPAK Packages						
Series	$I_{F(AV)}$ (A)	$V_{RRM}$ (V)	$V_{TM}$ at 25 °C (V)	$I_{GT}$ (mA)	Package	
 <b>VS-10TTS08-M3</b> Halogen-free	6.5	800	1.15	15	TO-220AB	
 <b>VS-12TTS08-M3</b> Halogen-free	6.5	800	1.2	15	TO-220AB	
 <b>VS-16TTS12-M3</b> High voltage; halogen-free	10	Up to 1600	1.4	60	TO-220AB	
 <b>VS-16TTS12FP-M3</b> Isolated TO-220 FullPAK; high voltage; halogen-free	10	Up to 1600	1.4	60	TO-220AB FullPAK	
 <b>VS-25TTS12-M3</b> High voltage; halogen-free	16	Up to 1600	1.25	45	TO-220AB	
 <b>VS-25TTS12FP-M3</b> Isolated TO-220 FullPAK; high voltage; halogen-free	16	Up to 1600	1.25	45	TO-220AB FullPAK	
 <b>VS-40TTS12-M3</b> Halogen-free	25	Up to 1600	1.6	35	TO-220AB	

Glass Passivated Thyristors in D <sup>2</sup> PAK and TO-247 Packages						
Series	$I_{F(AV)}$ (A)	$V_{RRM}$ (V)	$V_{TM}$ at 25 °C (V)	$I_{GT}$ (mA)	Package	
 <b>VS-10TTS08S-M3</b> Halogen-free	6.5	800	1.15	15	D <sup>2</sup> PAK (TO-263AB)	
 <b>VS-12TTS08S-M3</b> Halogen-free	6.5	800	1.2	15	D <sup>2</sup> PAK (TO-263AB)	
 <b>VS-16TTS16S-M3</b> High voltage; halogen-free	10	Up to 1600	1.4	60	D <sup>2</sup> PAK (TO-263AB)	
 <b>VS-25TTS16S-M3</b> High voltage; halogen-free	16	Up to 1600	1.25	45	D <sup>2</sup> PAK (TO-263AB)	
 <b>VS-30TPS16-M3</b> High voltage (up to 1600 V); halogen-free	20	Up to 1600	1.3	45	TO-247AC	
 <b>VS-40TPS16-M3</b> High voltage (up to 1600 V); low $I_{GT}$ available; halogen-free	35	Up to 1600	1.45	150	TO-247AC	
 <b>VS-50TPS12L-M3</b> Long Lead TO-247 package; high $T_j$ max. (150 °C); high $dV/dt$ (1000 V/μs)	50	1200	1.2	100	TO-247L	
 <b>VS-70TPS16PBF</b> High current; high voltage (up to 1600 V)	70	Up to 1600	1.4	100	Super TO-247	










AEC-Q101 Qualified Glass Passivated Thyristors for Automotive Applications						
Series	$I_{RMS}$ (A)	$V_{RRM} / V_{DRM}$ (V)	$V_{TM}$ at 25 °C (V)	$I_{GT}$ (mA)	Package	
 <b>VS-12TTS08SLHM3</b> AEC-Q101 qualified; halogen-free	12	800	1.2	15	D <sup>2</sup> PAK (TO-263AB)	
 <b>VS-25TTS12SLHM3</b> AEC-Q101 qualified; halogen-free; 1600 V available; TO-220 version available	25	1200	1.25	45	D <sup>2</sup> PAK (TO-263AB)	
 <b>VS-30TPS12LHM3</b> AEC-Q101 qualified; high voltage (up to 1600 V); halogen-free; long lead TO-247 package	30	1200	1.3	45	TO-247L	
 <b>VS-40TPS12LHM3</b> AEC-Q101 qualified; high voltage (up to 1600V); low $I_{GT}$ available; halogen-free; long lead TO-247 package	55	1200	1.45	150	TO-247L	
 <b>VS-50TPS12LHM3</b> AEC-Q101 qualified; halogen-free; long lead TO-247 package	79	1200	1.32	100	TO-247L	










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## Focus Products

### Hockey Puck Capsule Phase Control Thyristors (A-PUK, E-PUK, B-PUK, and K-PUK)

	Series	$I_{F(AV)}$ (A)	$V_{RRM}$ (V)	$V_{TM}$ at 25 °C (V)	$I_{GT}$ (mA)	Package
Center amplifying gate; hermetic metal case with ceramic insulator						
	<b>ST180C Series</b>	350	400 to 2000	1.96	90	A-PUK (TO-200AB)
	<b>ST230C Series</b>	410	400 to 2000	1.69	90	E-PUK (TO-200AB)
	<b>ST300C Series</b>	650	400 to 2000	2.18	100	E-PUK (TO-200AB)
	<b>ST330C Series</b>	720	400 to 1600	1.96	100	E-PUK (TO-200AB)
	<b>ST650C Series</b>	790	2000 to 2400	2.07	100	B-PUK (TO-200AC)
	<b>ST730CL Series</b>	990	800 to 2000	1.62	100	B-PUK (TO-200AC)
	<b>ST1000C Series</b>	1473	1200 to 2600	1.8	100	K-PUK (A-24)
	<b>ST1200C Series</b>	1650	1200 to 2000	1.73	100	K-PUK (A-24)
	<b>ST1230C Series</b>	2310	800 to 1600	1.44	100	K-PUK (A-24)

### Stud-Mounted Phase Control Thyristors

	Series	$I_{F(AV)}$ (A)	$V_{RRM}$ (V)	$V_{TM}$ at 25 °C (V)	$I_{GT}$ (mA)	Package
Hermetic glass-metal seal; international standard case						
	<b>25RIA Series</b>	25	100 to 1200	1.7	60	TO-48 (TO-208AA)
	<b>50RIA Series</b>	50	100 to 1200	1.6	100	TO-65 (TO-208AC)
	<b>80RIA Series</b>	80	400 to 1200	1.6	120	TO-94 (TO-209AC)
	<b>180RKI Series</b>	180	400 to 1000	1.35	65	TO-93 (TO-209AB)
Hermetic glass-metal seal; hermetic package; compression bonded encapsulation for heavy duty operations such as severe thermal cycling						
	<b>ST230S Series</b>	230	800 to 1600	1.55	150	TO-93 (TO-209AB)
	<b>ST280S Series</b>	280	400 and 600	1.28	150	TO-93 (TO-209AB)
Metal case with ceramic insulator; hermetic package; compression bonded encapsulation for heavy duty operations such as thermal cycling						
	<b>ST330S Series</b>	330	400 to 2000	1.52	200	TO-118 (TO-209AE)

# Vishay Offers a Broad Range of Thyristors From Plastic Discrete to Robust and Highly Reliable Hermetic Ceramic and Metal Housing

## Advantages of Vishay Thyristors

- High voltage
- Through-hole, surface-mount, ceramic, and stud-mounted packages
- Bare die also available
- International standard packages

## For the Following Applications

- Onboard chargers for fully electric vehicles and plug-in hybrid electric vehicles
- Industrial power supplies: chemical use, plating power supplies, power supplies for temperature control of high power furnaces
- High voltage input rectification (soft start)
- AC switches, UPS, welding
- Motor control
- Controlled DC power supplies
- Battery chargers
- Induction heating



SCR thyristors in hockey puck and stud styles provide a rugged and highly reliable solution for the most demanding industrial applications



AEC-Q101 qualified thyristors offer voltages up to 1600 V and are ideal for fully electric vehicles and plug-in hybrid vehicles

## Useful Links

- Thyristors – Phase Control Discrete  
[www.vishay.com/thyristors/phase-control-discrete/](http://www.vishay.com/thyristors/phase-control-discrete/)
- Thyristors – Fast Discrete  
[www.vishay.com/thyristors/fast-discrete/](http://www.vishay.com/thyristors/fast-discrete/)

**HALOGEN FREE** **RoHS COMPLIANT**