VISHAY
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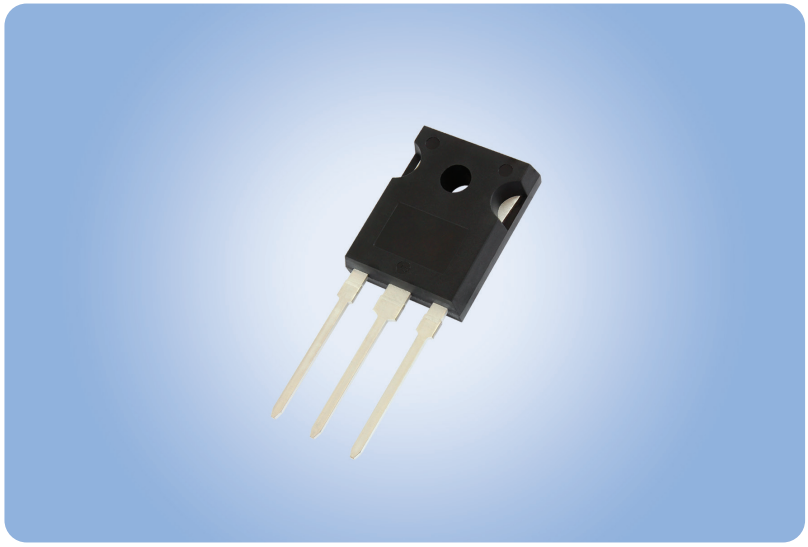
THYRISTORS

VS-50TPS12L-M3, VS-50TPS12AL-M3, VS-50TPS12LHM3

50 A, 1200 V Thyristor in TO-247AD 3L Package Saves Space in Medium Power Switching Applications



KEY BENEFITS

- TO-247AD 3L package with long leads
- High surge current to 630 A
- High temperature operation to +150 °C
- 20 mm leads
- High dV/dT of 1000 V/µs provides increased EMI immunity
- Low I_{GT} version available
- AEC-Q101 qualified version available

APPLICATIONS

- For use in input rectification crowbar (soft start) and AC switch motor controls, UPS, welding, and industrial battery chargers
- AEC-Q101 qualified version suitable for battery charging systems, EV / HEV vehicles, and other automotive applications

RESOURCES

- Datasheets: VS-50TPS12L-M3 - www.vishay.com/ppg?95867
  VS-50TPS12AL-M3 (low I_{GT}) - www.vishay.com/ppg?96593
  VS-50TPS12LHM3 (AEC-Q101 qualified) - www.vishay.com/ppg?96108
- For technical questions contact:
  DiodesAmerica@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com
- Material categorization:
  for definitions of compliance please see www.vishay.com/doc?99912

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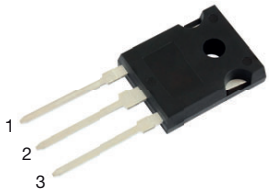
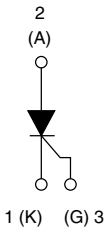
Thyristor High Voltage, Phase Control SCR, 50 A



TO-247AD 3L



FEATURES

- Designed and qualified according to JEDEC®-JESD 47
- 150 °C maximum operating junction temperature
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb e3 RoHS COMPLIANT HALOGEN FREE

APPLICATIONS

Typical usage is in input rectification crowbar (soft start) and AC switch motor control, UPS, welding, and battery charge.

DESCRIPTION

The VS-50TPS12 high voltage 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 150 °C junction temperature.

PRIMARY CHARACTERISTICS	
$I_{T(AV)}$	50 A
V_{DRM}/V_{RRM}	1200 V
V_{TM} (typ.)	1.1 V
I_{GT} (typ.)	45 mA
T_J	-40 °C to +150 °C
Package	TO-247AD 3L
Circuit configuration	Single SCR

MAJOR RATINGS AND CHARACTERISTICS			
PARAMETER	TEST CONDITIONS	VALUES	UNITS
V_{RRM}/V_{DRM}		1200	V
V_T	50 A, T_J = 125 °C	1.1	
$I_{T(AV)}$		50	A
I_{RMS}		79	
I_{TSM}		630	
dV/dt		1000	V/µs
T_J, T_{Stg}		-40 to +150	°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
VS-50TPS12L-M3	1200	1300	10

Revision: 07-Dec-2022

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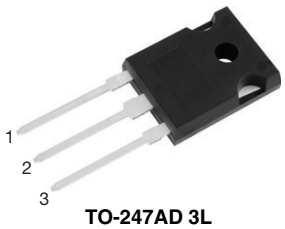
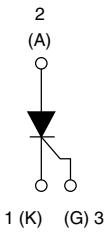
THYRISTORS

VS-50TPS12AL-M3

Thyristor High Voltage, Phase Control SCR, 50 A



TO-247AD 3L



FEATURES

- Designed and qualified according to JEDEC®-JESD 47
- Low I_{GT} designed
- 150 °C maximum operating junction temperature
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT
HALOGEN FREE

APPLICATIONS

Typical usage is in input rectification crowbar (soft start) and AC switch motor control, UPS, welding, and battery charge.

DESCRIPTION

The VS-50TPS12 high voltage 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 150 °C junction temperature.

PRIMARY CHARACTERISTICS	
$I_{T(AV)}$	50 A
V_{DRM}/V_{RRM}	1200 V
V_{TM} (typ.)	1.1 V
I_{GT} (typ.)	35 mA
T_J	-40 °C to +150 °C
Package	TO-247AD 3L
Circuit configuration	Single SCR

MAJOR RATINGS AND CHARACTERISTICS			
PARAMETER	TEST CONDITIONS	VALUES	UNITS
V_{RRM}/V_{DRM}		1200	V
V_T	50 A, T_J = 125 °C	1.1	
$I_{T(AV)}$		50	A
I_{RMS}		79	
I_{TSM}		630	
dV/dt		500	V/µs
T_J, T_{Stg}		-40 to +150	°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
VS-50TPS12AL-M3	1200	1300	10

Revision: 21-Nov-2022

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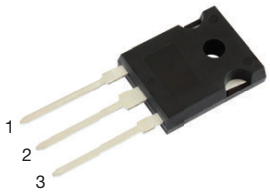
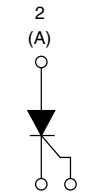
Thyristor High Voltage, Phase Control SCR, 50 A



TO-247AD 3L



FEATURES

- AEC-Q101 qualified, meets JESD 201 class 1A whisker test
- Flexible solution for reliable AC power rectification
- Easy control peak current at charger power up to reduce passive / electromechanical components
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT
HALOGEN FREE

APPLICATIONS

- On-board and off-board EV / HEV battery chargers
- Renewable energy inverters

DESCRIPTION

The VS-50TPS12 high voltage series of silicon controlled rectifiers are specifically designed for medium power switching, and phase control applications.

PRIMARY CHARACTERISTICS	
$I_{T(AV)}$	50 A
V_{DRM}/V_{RRM}	1200 V
V_{TM} (typ.)	1.2 V
I_{GT} (typ.)	45 mA
T_J max.	150 °C
Package	TO-247AD 3L
Circuit configuration	Single SCR

MAJOR RATINGS AND CHARACTERISTICS				
PARAMETER	SYMBOL	TEST CONDITIONS	VALUES	UNITS
Peak repetitive reverse voltage	V_{RRM} / V_{DRM}		1200	V
On-state voltage	V_T	50 A, T_J = 125 °C	1.2	
Average rectified forward current	$I_{T(AV)}$		50	A
Maximum continuous RMS on-state current	I_{RMS}		79	
Non-repetitive peak surge current	I_{TSM}		630	
Maximum rate of rise	dv/dt		1000	V/µs
Operating junction and storage temperature range	T_J, T_{Stg}		-40 to +150	°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 150 °C mA
VS-50TPS12LHM3	1200	1300	70

Revision: 27-Jul-2018