Automotive-grade, 1200 V, 50 A SCR: TN5050H-12WY
AC/DC converter applications

life.augmented

This 1200 V, 50 A automotive-grade thyristor makes AC/DC converters safe by limiting the inrush current and providing insulation against AC line overvoltages

Available in a TO-247, high power package, the TN5050H-12WY automotive- grade SCR is suitable for automotive ⁄ stationary battery chargers, renewable energy generators, uninterruptible power supplies, solid state relays, welding equipment and motor drive applications. The TN5050H-12WY offers superior performance in surge current handling (ITSM = 200 A at 10ms), thermal cooling capabilities (Rth(j-c) = 0.3 °C/W) and high surge voltage withstanding capability (VDSM/VRSM = 1300 V).

KEY FEATURES

- On-state RMS current: 50 A
- Blocking voltage: 1200 V
- High commutation: 200 A/µs
- High off-state immunity: 1000 V/µs
- Gate trigger current: 50 mA
- AEC-Q101 compliant
- ECOPACK®2 compliant

KEY BENEFITS

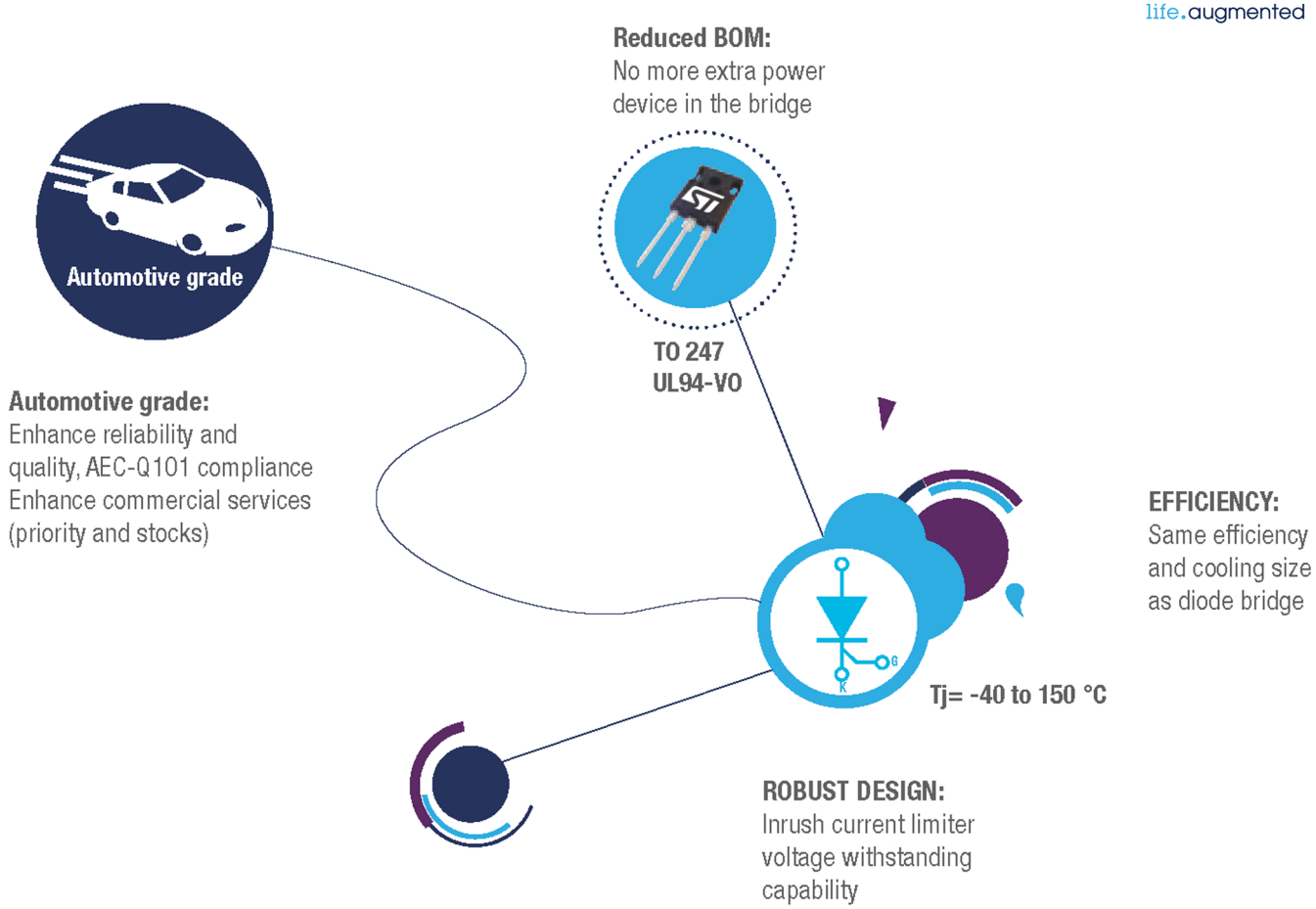
- Automotive grade: reliability, quality and AEC-Q101 compliance
- Reduce BOM: extra power device no longer needed in the rectifier bridge
- Same efficiency/dissipation and cooling size as diode bridge
- High PCB creepage distance above 4mm
- Control peak current at charger power up

TARGETED APPLICATIONS

- EV/HEV (on board, off board battery chargers)
- Industrial battery chargers
- Renewable energy inverters
- Solid state relays
- Uninterruptible power supplies (bypass)
- Motor drive (inrush current limiter, soft start)
- Industrial welding system

TN5050H-12WY IN BRIEF

life.augmented



TN5050H-12WY PRODUCT TABLE

Part number	Package	Triggering gate current (IGT)	Repetitive peak off-state voltage (V_{DRM} and V_{RRM})	Junction temperature (T_j)	RMS on-state current $I_{T(RMS)}$	Peak on-state voltage (V_{TM})	Maximum leakage current (IDRM and IRRM) (@Tj =25°C)	Non-repetitive surge-peak on-state current (@ tp= 10 ms) I_{TSM}	Critical rate of rise of off-state voltage (dV/dt)	Junction-to-case thermal resistance Rth(j-c)
		max (mA)	max (V)	max (°C)	(A)	max (V)	max (µA)	(A)	min (V/µs)	(°C/W)
Automotive-grade AECQ-101-compliant										
TN5050H-12WY	T0247	50	1200	150	50	1.55	5	580	1000	0.3

Application note AN4606 with additional information about the inrush current limiter function in the thyristor-triac is available on st.com

Rutronik Elektronische Bauelemente GmbH
Industriestr. 2 I 75228 Ispringen / Pforzheim
Tel +49 (0) 7231 801-0 I Fax +49 (0) 7231 82282
Contact: Bichvan.Tang@rutronik.com