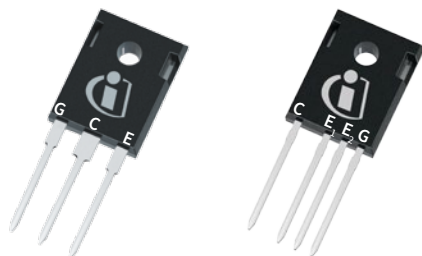




Product Brief

TO-247 4pin Kelvin Emitter Configuration with TRENCHSTOP™ 5 IGBTs

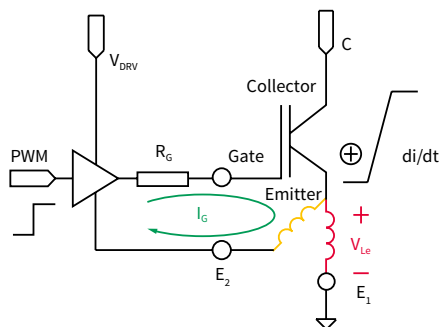
To further enhance the best in class performance of the TRENCHSTOP™ 5 IGBT technology, Infineon offers the technology in a high power package with an extra Kelvin emitter pin. The TO-247 4pin provides ultra-low inductance to the gate-emitter control loop and brings TRENCHSTOP™ 5 IGBT to the next level of best in class switching performance. The standard TO-247 package body has been taken and an extra, 4th pin, has been added to enable the Kelvin emitter configuration.



Standard TO-247

Kelvin Emitter TO-247 4pin

Comparing against the standard TO-247, the pin configuration has been changed to ensure the same creepage distance between collector and emitter.



To connect the TO-247 4pin package, the Kelvin emitter pin is to be used as the reference ground for the driver IC. This has the advantage of removing the emitter inductance from the feedback loop to the driver IC, thus enabling faster turn-on/-off.

Features

- Extremely low control inductance loop
- Emitter pin for driver feedback
- Same creepage distance of collector emitter as standard TO-247 package
- 20% reduction in total switching losses compared to TO-247 package using same technology

Benefits

- System efficiency improvement compared to standard TO-247
- Benefit increase at high current conditions
- IGBTs operates under lower junction temperature
- Much less power dissipation under overcurrent conditions

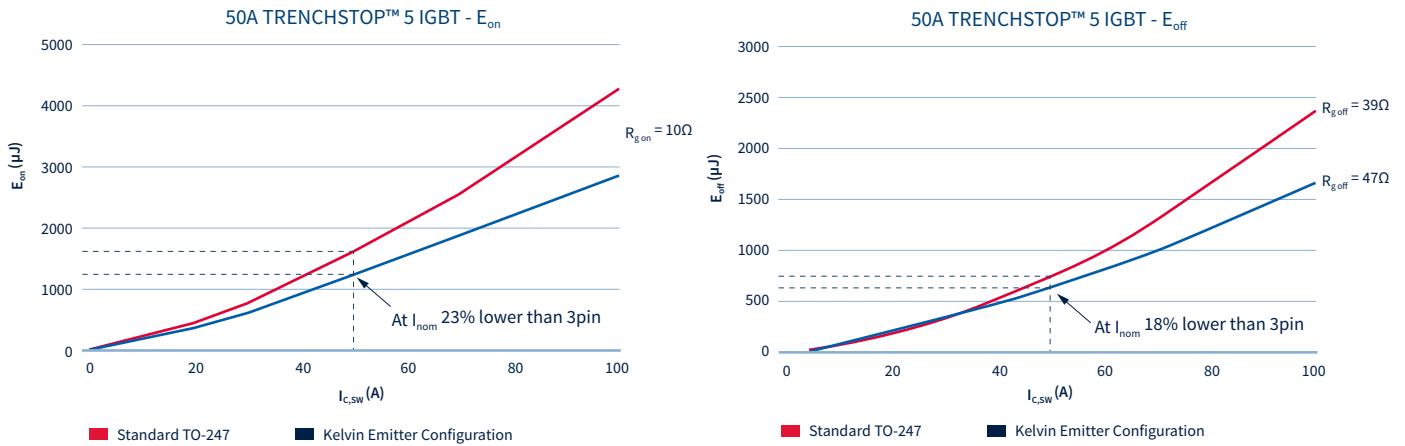
Applications

- Uninterruptible power supply
- Datacenters
- Telecom Rectifiers
- Photovoltaic Inverters



TO-247 4pin Kelvin Emitter Configuration with TRENCHSTOP™ 5 IGBTs

From application measurements, the switching losses have been significantly improved as can be seen from the plots below



To give customers the flexibility and opportunity to take advantage of TRENCHSTOP™ 5, the 50A and the 75A devices will be available in both the Standard TO-247 and the 4pin variant.

TO-247 4pin includes TRENCHSTOP™ 5 copacked with Rapid 1 or Rapid 2 Diode

	Rapid 1		Rapid 2	no diode
	$I_F = I_{C,nom} [IGBT]/2$	$I_F = I_{C,nom} [IGBT]$	$I_F = I_{C,nom} [IGBT]$	
50A	TO-247*	TO-247* TO-247 4pin	TO-247 4pin	TO-247* TO-247 4pin
75A		TO-247* TO-247 4pin	TO-247 4pin	TO-247* TO-247 4pin
100A				TO-247 4pin

*Samples availability CY15

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