Product Brief

TRENCHSTOP™ IGBT6

650 V trench and field-stop IGBT for low power motor drives

Motor drives up to 1 kW are used in a wide variety of applications from home appliance fans and compressors to commercial sewing machines and pumps. The market for these products demands longer lifetimes, high reliability and high efficiency. Therefore these compact motors require power electronics with the lowest losses and best thermal performance.

The TRENCHSTOP™ IGBT6 family of discrete devices has been designed to meet these specific requirements of motor drives. It has been optimized for the lowest switching losses, especially important in systems with higher switching frequencies up to 30 kHz. Additionally the IGBTs are co-packed with the soft, fast recovery Rapid 1 anti-parallel diodes for the lowest total losses.

With a higher blocking voltage at 650 V, and short circuit rating, TRENCHSTOP™ IGBT6 is a key contributor to robust motor designs.
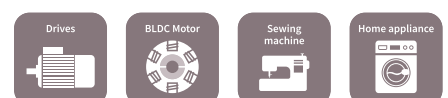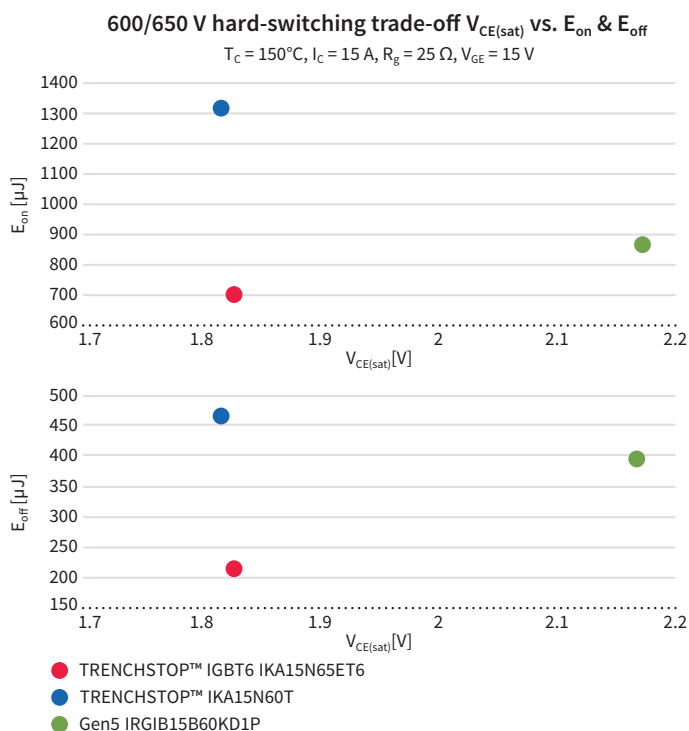
The devices are offered in TO-220 FullPAK packages for the required isolation, as well as DPAKs for a more compact, surface mount solution.

Key features

› 650 V blocking voltage
› Optimized for switching frequencies from 8–30 kHz
› Lowest $V_{CE(sat)}$ and V_f
› 3 μsec short-circuit protection capability

Key benefits

› Good thermal performance, especially at higher frequencies
› Low losses to meet energy efficiency requirements
› Increased design margin and reliability
› Leading price/performance

600/650 V hard-switching trade-off $V_{CE(sat)}$ vs. E_{on} & E_{off}

$T_C = 150°C$, $I_C = 15$ A, $R_g = 25$ Ω, $V_{GE} = 15$ V

● TRENCHSTOP™ IGBT6 IKA15N65ET6
● TRENCHSTOP™ IKA15N60T
● Gen5 IRGIB15B60KD1P

www.infineon.com/igbt6
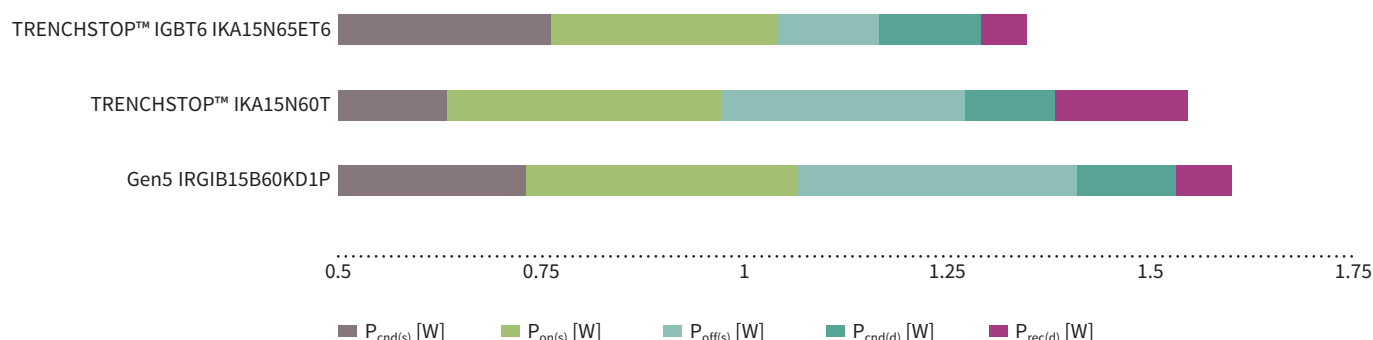
Drives   BLDC Motor   Sewing machine   Home appliance

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› Optimized for small drives requiring best in class efficiency
› Lowest switching losses for better heat management and easier design-in
› Up to 20 percent reduction in total losses

Power losses [W]
550 W @ T_A = 25°C, 10 kHz, same dv/dt

TRENCHSTOP™ IGBT6 IKA15N65ET6

TRENCHSTOP™ IKA15N60T

Gen5 IRGIB15B60KD1P

0.5   0.75   1   1.25   1.5   1.75

$P_{cnd(s)}$ [W] $P_{on(s)}$ [W] $P_{off(s)}$ [W] $P_{cnd(d)}$ [W] $P_{rec(d)}$ [W]

TRENCHSTOP™ IGBT6 portfolio overview

Part number	Package	I_C @ 100°C [A]	$V_{CE(sat)}$ @ 25°C [V]	E_{on} @ 25°C [mJ]	E_{off} @ 25°C [mJ]	Q_G @ 25°C [nC]	I_F @ 100°C [A]	Q_{rr} @ 25°C [µC]
IKA08N65ET6	TO-220 FullPAK	7	1.5 @ 5 A	0.11	0.04	17	9	0.15
IKA10N65ET6	TO-220 FullPAK	9	1.5 @ 8.5 A	0.20	0.07	27	9	0.21
IKA15N65ET6	TO-220 FullPAK	11	1.5 @ 11.5 A	0.23	0.11	37	10	0.21
IKD06N65ET6[1]	DPAK	8	1.5 @ 3 A	0.06	0.02	12	10	0.09

1) Coming soon

Additional information
For further information on technologies, our products, the application of our products, delivery terms and conditions and/or prices, please contact your nearest Infineon Technologies office (www.infineon.com).

Warnings
Due to technical requirements, our products may contain dangerous substances. For information on the types in question, please contact your nearest Infineon Technologies office.

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