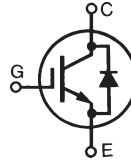
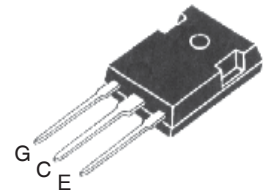


**HiPerFAST™ IGBT
B2-Class High Speed IGBT**
IXGH 16N60B2D1

$$\begin{aligned}
 V_{CES} &= 600 \text{ V} \\
 I_{C25} &= 40 \text{ A} \\
 V_{CE(sat)} &= 2.0 \text{ V} \\
 t_{fi(typ)} &= 80 \text{ ns}
 \end{aligned}$$



Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	600	V
V_{CGR}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}; R_{GE} = 1 \text{ M}\Omega$	600	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$	40	A
I_{C110}	$T_C = 110^\circ\text{C}$	16	A
I_{F110}	$T_C = 110^\circ\text{C}$ (IXG_16N60B2D1 diode)	11	A
I_{CM}	$T_C = 25^\circ\text{C}, 1 \text{ ms}$	100	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}, T_J = 125^\circ\text{C}, R_G = 22 \Omega$ Clamped inductive load	$I_{CM} = 32$ @0.8 V_{CES}	A
P_C	$T_C = 25^\circ\text{C}$	150	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 ... +150	$^\circ\text{C}$
M_d	Mounting torque	1.13/10 Nm/lb.in.	
	Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s	300	$^\circ\text{C}$
Weight		6	g

TO-247 (IXGH)


G = Gate C = Collector
E = Emitter TAB = Collector

Features

- International standard packages
- IGBT and anti-parallel FRED for resonant power supplies
 - Induction heating
 - Rice cookers
- MOS Gate turn-on
 - drive simplicity
- Fast Recovery Expitaxial Diode (FRED)
 - soft recovery with low I_{RM}

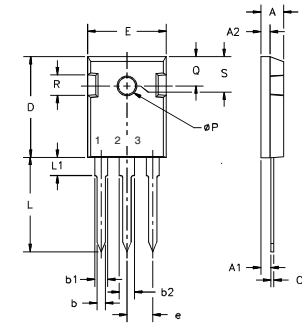
Advantages

- Saves space (two devices in one package)
- Easy to mount with 1 screw
- Reduces assembly time and cost

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
$V_{GE(th)}$	$I_C = 250 \mu\text{A}, V_{CE} = V_{GE}$	2.5		5.0 V
I_{CES}	$V_{CE} = V_{CES}$ $V_{GE} = 0 \text{ V}$ $T_J = 125^\circ\text{C}$			50 μA 1 mA
I_{GES}	$V_{CE} = 0 \text{ V}, V_{GE} = \pm 20 \text{ V}$			$\pm 100 \text{ nA}$
$V_{CE(sat)}$	$I_C = 12 \text{ A}, V_{GE} = 15 \text{ V}$ Note 2 $T_J = 125^\circ\text{C}$		1.8	2.3 V V

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	$I_C = 12\text{A}; V_{CE} = 10\text{V}$, Note 2.	8	12	S
C_{ies}	$V_{CE} = 25\text{V}, V_{GE} = 0\text{V}, f = 1\text{MHz}$		780	pF
C_{oes}			65	pF
C_{res}			19	pF
Q_g	$I_C = 20\text{A}, V_{GE} = 15\text{V}, V_{CE} = 0.5 V_{CES}$		32	nC
Q_{ge}			6	nC
Q_{gc}			10	nC
$t_{d(on)}$			25	ns
t_{ri}	Inductive load, $T_J = 25^\circ\text{C}$		15	ns
$t_{d(off)}$	$I_C = 12\text{A}; V_{GE} = 15\text{V}$		70	150 ns
t_{fi}	$V_{CE} = 400\text{V}; R_G = R_{off} = 22\ \Omega$ Note 1.		80	150 ns
E_{off}			150	260 μJ
$t_{d(on)}$			25	ns
t_{ri}	Inductive load, $T_J = 125^\circ\text{C}$		18	ns
E_{on}	$I_C = 12\text{A}; V_{GE} = 15\text{V}$		700	μJ
$t_{d(off)}$	$V_{CE} = 400\text{V}; R_G = R_{off} = 22\ \Omega$		110	ns
t_{fi}	Note 1		170	ns
E_{off}			350	μJ
R_{thJC}				0.83 K/W
R_{thCK}			0.25	K/W

TO-247 Outline



Terminals: 1 - Gate 2 - Drain
3 - Source Tab - Drain

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.7	5.3	.185	.209
A ₁	2.2	2.54	.087	.102
A ₂	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b ₁	1.65	2.13	.065	.084
b ₂	2.87	3.12	.113	.123
C	.4	.8	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L1		4.50		.177
∅P	3.55	3.65	.140	.144
Q	5.89	6.40	0.232	0.252
R	4.32	5.49	.170	.216
S	6.15	BSC	.242	BSC

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
V_F	$I_F = 10\text{A}, V_{GE} = 0\text{V}$ $T_J = 125^\circ\text{C}$			2.66 V 1.66 V
I_{RM}	$I_F = 12\text{A}; -di_F/dt = 100\text{A}/\mu\text{s}, V_R = 100\text{V}$		2.5	A
t_{rr}	$V_{GE} = 0\text{V}; T_J = 125^\circ\text{C}$		110	ns
t_{rr}	$I_F = 1\text{A}; -di_F/dt = 100\text{A}/\mu\text{s}; V_R = 30\text{V}, V_{GE} = 0\text{V}$		30	ns
R_{thJC}				2.5 K/W

- Notes:
- Switching times may increase for $V_{CE}(\text{Clamp}) > 0.8 \cdot V_{CES}$, higher T_J or increased R_G .
 - Pulse test, $t < 300\ \mu\text{s}$, duty cycle $d < 2\%$

IXYS reserves the right to change limits, test conditions, and dimensions.