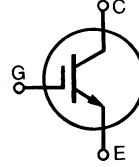


Preliminary data

HiPerFAST™ IGBT

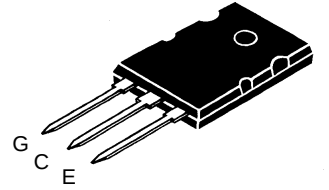
IXGK80N60A

$$\begin{aligned} V_{CES} &= 600 \text{ V} \\ I_{C25} &= 80 \text{ A} \\ V_{CE(sat)} &= 2.7 \text{ V} \\ t_{fi} &= 275 \text{ ns} \end{aligned}$$



Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C}$ to 150°C	600	V
V_{CGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GE} = 1 \text{ M}\Omega$	600	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$, limited by leads	80	A
I_{C90}	$T_C = 90^\circ\text{C}$	80	A
I_{CM}	$T_C = 25^\circ\text{C}$, 1 ms	200	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}$, $T_{VJ} = 125^\circ\text{C}$, $R_G = 10 \Omega$ Clamped inductive load, $L = 30 \mu\text{H}$	$I_{CM} = 100$ @ $0.8 V_{CES}$	A
P_C	$T_C = 25^\circ\text{C}$	500	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 (M4)	0.9/6	Nm/lb.in.
Weight		10	g
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10s		300	$^\circ\text{C}$

TO-264 AA



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

Features

- International standard package JEDEC TO-264 AA
- Two mached dice connected in parallel
- Low $V_{CE(sat)}$
 - for minimum on-state conduction losses
- MOS Gate turn-on
 - drive simplicity

Applications

- AC motor speed control
- DC servo and robot drives
- DC choppers
- Uninterruptible power supplies (UPS)
- Switch-mode and resonant-mode power supplies

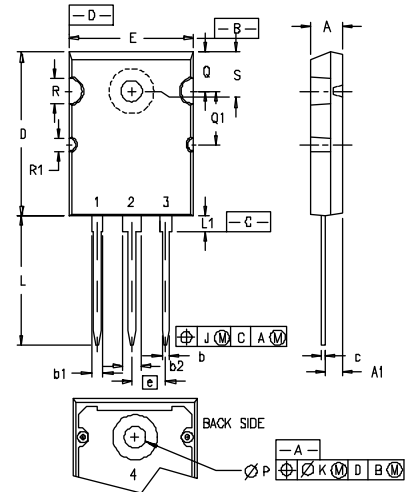
Advantages

- Easy to mount with 1 screw (isolated mounting screw hole)
- Reduces assembly time and cost
- High power density

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
BV_{CES}	$I_C = 500 \mu\text{A}$, $V_{GE} = 0 \text{ V}$	600		V
$V_{GE(th)}$	$I_C = 500 \mu\text{A}$, $V_{CE} = V_{GE}$	2.5		5 V
I_{CES}	$V_{CE} = 0.8 \cdot V_{CES}$ $V_{GE} = 0 \text{ V}$			400 μA 2 mA
I_{GES}	$V_{CE} = 0 \text{ V}$, $V_{GE} = \pm 20 \text{ V}$			$\pm 100 \text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}$, $V_{GE} = 15 \text{ V}$			2.7 V

Symbol	Test Conditions	Characteristic Values (T _J = 25°C, unless otherwise specified)			
		min.	typ.	max.	
g_{fs}	$I_C = 40A$; $V_{CE} = 10 V$, Pulse test, $t \leq 300 \mu s$, duty cycle $\leq 2 \%$	30	50		S
Q_g	$I_C = I_{C90}$, $V_{GE} = 15 V$, $V_{CE} = 0.5 V_{CES}$		400		nC
Q_{ge}			70		nC
Q_{gc}			160		nC
C_{ies}	$V_{CE} = 25 V$, $V_{GE} = 0 V$, $f = 1 MHz$		8000		pF
C_{oes}			860		pF
C_{res}			200		pF
$t_{d(on)}$	Inductive load, T_J = 25°C $I_C = I_{C90}$, $V_{GE} = 15 V$, $L = 100 \mu H$, $V_{CE} = 0.8 V_{CES}$, $R_G = R_{off} = 2.7 \Omega$ Remarks: Switching times may increase for $V_{CE} (Clamp) > 0.8 \cdot V_{CES}$, higher T _J or increased R _G		50		ns
t_{ri}			210		ns
$t_{d(off)}$			300		ns
t_{fi}			350	500	ns
E_{off}			10	12.5	mJ
$t_{d(on)}$	Inductive load, T_J = 125°C $I_C = I_{C90}$, $V_{GE} = 15 V$, $L = 100 \mu H$ $V_{CE} = 0.8 V_{CES}$, $R_G = R_{off} = 2.7 \Omega$ Remarks: Switching times may increase for $V_{CE} (Clamp) > 0.8 \cdot V_{CES}$, higher T _J or increased R _G		50		ns
t_{ri}			240		ns
E_{on}			3		mJ
$t_{d(off)}$			400		ns
t_{fi}			600		ns
E_{off}			15		mJ
R_{thJC}				0.25	K/W
R_{thCK}			0.15		K/W

TO-264 AA Outline



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.185	.209	4.70	5.31
A1	.102	.118	2.59	3.00
b	.037	.055	0.94	1.40
b1	.087	.102	2.21	2.59
b2	.110	.126	2.79	3.20
c	.017	.029	0.43	0.74
D	1.007	1.047	25.58	26.59
E	.760	.799	19.30	20.29
e	.215 BSC		5.46 BSC	
J	.000	.010	0.00	0.25
K	.000	.010	0.00	0.25
L	.779	.842	19.79	21.39
L1	.087	.102	2.21	2.59
ØP	.122	.138	3.10	3.51
Q	.240	.256	6.10	6.50
Q1	.330	.346	8.38	8.79
ØR	.155	.187	3.94	4.75
ØR1	.085	.093	2.16	2.36
S	.243	.253	6.17	6.43

1 - GATE
2, 4 - DRAIN (COLLECTOR)
3 - SOURCE (EMITTER)