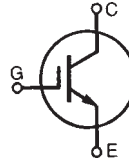


HiPerFAST™ IGBT

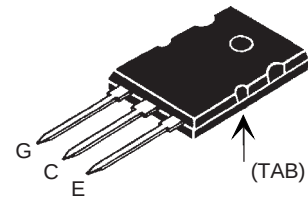
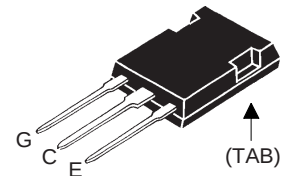
Lightspeed 2™ Series

IXGK 120N60C2
IXGX 120N60C2

$$\begin{aligned} V_{CES} &= 600 \text{ V} \\ I_{C110} &= 120 \text{ A} \\ V_{CE(sat)} &= 2.5 \text{ V} \\ t_{fi(typ)} &= 45 \text{ ns} \end{aligned}$$


Symbol	Test Conditions	Maximum Ratings	
V _{CES}	T _J = 25°C to 150°C	600	V
V _{CGR}	T _J = 25°C to 150°C; R _{GE} = 1 MΩ	600	V
V _{GES}	Continuous	± 20	V
V _{GEM}	Transient	± 30	V
I _{C25}	T _C = 25°C (limited by leads)	75	A
I _{C110}	T _C = 110°C (die limit)	120	A
I _{CM}	T _C = 25°C, 1 ms	500	A
SSOA (RBSOA)	V _{GE} = 15 V, T _{VJ} = 125°C, R _G = 4.7 Ω Clamped inductive load @ V _{CE} ≤ 600 V	I _{CM} = 200	A
P _C	T _C = 25°C	830	W
T _J		-55 ... +150	°C
T _{JM}		150	°C
T _{stg}		-55 ... +150	°C
V _{ISOL}	50/60 Hz, RMS, t = 1minute I _{ISOL} < 1 mA t = 20 seconds	2500 3000	V~ V~
F _C	Clamping force	20..120/4.5..25	N/ib
T _L	Maximum lead temperature for soldering (Note 3)	300	°C
T _{SOLD}	Plastic body for 10 seconds	260	°C
Weight	TO-264 PLUS247	10 5	g g

TO-264(IXGK)

**PLUS247(IXGX)**

G = Gate C = Collector
E = Emitter Tab = Collector

Features

- Very high frequency IGBT
- Square RBSOA
- High current handling capability
- MOS Gate turn-on
 - drive simplicity

Applications

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

Advantages

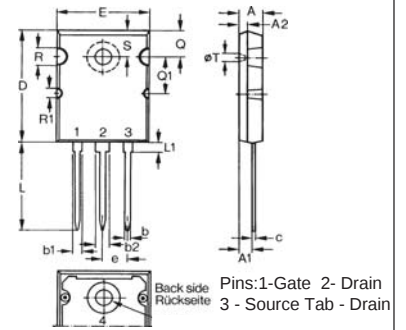
- High power density
- Very fast switching speeds for high frequency applications
- High power surface mountable packages

Symbol	Test Conditions	Characteristic Values (T _J = 25°C unless otherwise specified)		
		Min.	Typ.	Max.
B _{V_{CES}}	I _C = 1 mA, V _{GE} = 0 V	600		V
V _{GE(th)}	I _C = 500 μA, V _{CE} = V _{GE}	3.0		5.0 V
I _{CES}	V _{CE} = V _{CES} V _{GE} = 0 V T _J = 125°C			100 μA 2 mA
I _{GES}	V _{CE} = 0 V, V _{GE} = ± 20 V			± 200 nA
V _{CE(sat)}	I _C = I _{T1} , V _{GE} = 15 V Note 1	T _J = 25°C T _J = 125°C	2.1 2.0	2.5 V V

Symbol	Test Conditions	Characteristic Values (T _j = 25°C unless otherwise specified)		
		Min.	Typ.	Max.
g_{fs}	I _C = 60 A; V _{CE} = 10 V, Note 1	50	75	S
C_{ies}	V _{CE} = 25 V, V _{GE} = 0 V, f = 1 MHz		11	nF
C_{oes}			680	pF
C_{res}			190	pF
Q_g	I _C = I _T , V _{GE} = 15 V, V _{CE} = 0.5 V _{CES}		350	nC
Q_{ge}			72	nC
Q_{gc}			131	nC
t_{d(on)}	Inductive load, T_j = 25°C I _C = 80 A, V _{GE} = 15 V V _{CE} = 400 V, R _G = R _{off} = 1.0 Ω		18	ns
t_{ri}			25	ns
t_{d(off)}			95	150 ns
t_{fi}			45	ns
E_{off}			0.9	1.6 mJ
t_{d(on)}	Inductive load, T_j = 125°C I _C = 80 A, V _{GE} = 15 V V _{CE} = 400 V, R _G = R _{off} = 1.0 Ω		18	ns
t_{ri}			25	ns
E_{on}			1.6	mJ
t_{d(off)}			130	ns
t_{fi}			85	ns
E_{off}			1.5	mJ
R_{thJC}			0.15	0.15 K/W
R_{thJC}				K/W

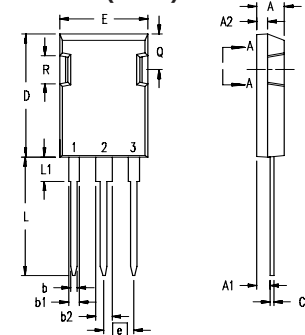
Note: 1. Pulse test, t ≤ 300 μs, duty cycle ≤ 2 %;
2. Test current I_T = 100 A;
3. Temperature measured at 1.6 mm (0.062 in.) from case for 10 seconds

TO-264 AA Outline



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.82	5.13	.190	.202
A1	2.54	2.89	.100	.114
A2	2.00	2.10	.079	.083
b	1.12	1.42	.044	.056
b1	2.39	2.69	.094	.106
b2	2.90	3.09	.114	.122
c	0.53	0.83	.021	.033
D	25.91	26.16	1.020	1.030
E	19.81	19.96	.780	.786
e	5.46 BSC		.215 BSC	
J	0.00	0.25	.000	.010
K	0.00	0.25	.000	.010
L	20.32	20.83	.800	.820
L1	2.29	2.59	.090	.102
P	3.17	3.66	.125	.144
Q	6.07	6.27	.239	.247
Q1	8.38	8.69	.330	.342
R	3.81	4.32	.150	.170
R1	1.78	2.29	.070	.090
S	6.04	6.30	.238	.248
T	1.57	1.83	.062	.072

PLUS 247™ (IXGX) Outline



Terminals: 1 - Gate
2 - Drain (Collector)
3 - Source (Emitter)
4 - Drain (Collector)

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.83	5.21	.190	.205
A1	2.29	2.54	.090	.100
A2	1.91	2.16	.075	.085
b	1.14	1.40	.045	.055
b1	1.91	2.13	.075	.084
b2	2.92	3.12	.115	.123
C	0.61	0.80	.024	.031
D	20.80	21.34	.819	.840
E	15.75	16.13	.620	.635
e	5.45 BSC		.215 BSC	
L	19.81	20.32	.780	.800
L1	3.81	4.32	.150	.170
Q	5.59	6.20	.220	.244
R	4.32	4.83	.170	.190

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

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents:

4,835,592	4,931,844	5,049,961	5,237,481	6,162,665	6,404,065 B1	6,683,344	6,727,585
4,850,072	5,017,508	5,063,307	5,381,025	6,259,123 B1	6,534,343	6,710,405B2	6,759,692
4,881,106	5,034,796	5,187,117	5,486,715	6,306,728 B1	6,583,505	6,710,463	6,771,478 B2