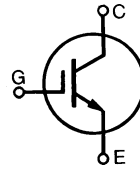


Low $V_{CE(sat)}$ IGBT High Speed IGBT

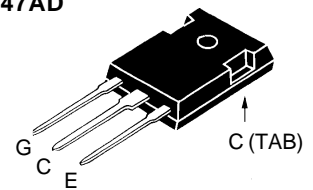
IXGH 12N100
IXGH 12N100A

V_{CES}	I_{C25}	$V_{CE(sat)}$
1000 V	24 A	3.5 V
1000 V	24 A	4.0 V



Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C}$ to 150°C	1000	V
V_{CGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GE} = 1\text{ M}\Omega$	1000	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$	24	A
I_{C90}	$T_C = 90^\circ\text{C}$	12	A
I_{CM}	$T_C = 25^\circ\text{C}$, 1 ms	48	A
SSOA (RBSOA)	$V_{GE} = 15\text{ V}$, $T_{VJ} = 125^\circ\text{C}$, $R_G = 150\ \Omega$ Clamped inductive load, $L = 300\ \mu\text{H}$	$I_{CM} = 24$ @ $0.8 V_{CES}$	A
P_C	$T_C = 25^\circ\text{C}$	100	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 (M3)	1.13/10	Nm/lb.in.
Weight		6	g
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	$^\circ\text{C}$

TO-247AD



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

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		Min.	Typ.	Max.
BV_{CES}	$I_C = 3\text{ mA}$, $V_{GE} = 0\text{ V}$ BV_{CES} temperature coefficient	1000	0.072	V %/K
$V_{GE(th)}$	$I_C = 500\ \mu\text{A}$, $V_{GE} = V_{GE}$ $V_{GE(th)}$ temperature coefficient	2.5	-0.192	V %/K
I_{CES}	$V_{CE} = 0.8 V_{CES}$, $T_J = 25^\circ\text{C}$ $V_{GE} = 0\text{ V}$, $T_J = 125^\circ\text{C}$			250 μA 1 mA
I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = \pm 20\text{ V}$			± 100 nA
$V_{CE(sat)}$	$I_C = I_{C90}$, $V_{GE} = 15\text{ V}$	12N100 12N100A		3.5 V 4.0 V

Features

- International standard package JEDEC TO-247 AD
- 2nd generation HDMOS™ process
- Low $V_{CE(sat)}$
 - for low on-state conduction losses
- High current handling capability
- MOS Gate turn-on
 - drive simplicity
- Voltage rating guaranteed at high temperature (125°C)

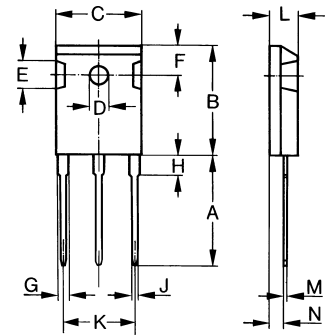
Applications

- 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)
- High power density

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		Min.	Typ.	Max.
g_{fs}	$I_C = I_{C90}$; $V_{CE} = 10\text{ V}$, Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$	6	10	S
C_{ies}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		750	pF
C_{oes}			80	pF
C_{res}			30	pF
Q_g	$I_C = I_{C90}$, $V_{GE} = 15\text{ V}$, $V_{CE} = 0.5 V_{CES}$		65	90 nC
Q_{ge}			8	nC
Q_{gc}			24	45 nC
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$ $I_C = I_{C90}$, $V_{GE} = 15\text{ V}$, $L = 300\ \mu\text{H}$, $V_{CE} = 0.8 V_{CES}$, $R_G = R_{off} = 120\ \Omega$ Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 V_{CES}$, higher T_J or increased R_G		100	ns
t_{ri}			200	ns
$t_{d(off)}$			850	1000 ns
t_{fi}		12N100	800	1000 ns
		12N100A	500	700 ns
E_{off}		12N100	2.5	mJ
		12N100A	1.5	3.0 mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$ $I_C = I_{C90}$, $V_{GE} = 15\text{ V}$, $L = 300\ \mu\text{H}$ $V_{CE} = 0.8 V_{CES}$, $R_G = R_{off} = 120\ \Omega$ Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 V_{CES}$, higher T_J or increased R_G		100	ns
t_{ri}			200	ns
E_{on}			1.1	mJ
$t_{d(off)}$			900	ns
t_{fi}		12N100	1250	ns
		12N100A	950	ns
E_{off}		12N100	3.5	mJ
		12N100A	2.2	mJ
R_{thJC}			1.25	K/W
R_{thCK}		0.25		K/W

TO-247 AD (IXGH) Outline


Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.610	0.640
D	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.4	6.2	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.5	-	0.177
J	1.0	1.4	0.040	0.055
K	10.8	11.0	0.426	0.433
L	4.7	5.3	0.185	0.209
M	0.4	0.8	0.016	0.031
N	1.5	2.49	0.087	0.102

IXGH12N100/A characteristic curves may be found in the IXGH12N100U/AU1 data sheet.



Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.