

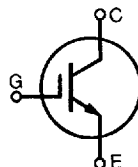
High Voltage, High speed IGBT

IXLH 35N120 A

$$\begin{aligned} V_{CES} &= 1200 \text{ V} \\ I_{C25} &= 58 \text{ A} \\ V_{CE(sat)} &= 3.6 \text{ V} \end{aligned}$$

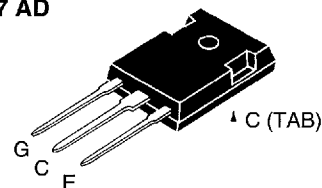
Short Circuit SOA Capability

Preliminary data



Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	1200	V
V_{CGR}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}; R_{GE} = 1 \text{ M}\Omega$	1200	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$	58	A
I_{C90}	$T_C = 90^\circ\text{C}$	35	A
I_{CM}	$T_C = 25^\circ\text{C}, 1 \text{ ms}$	70	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}, T_J = 125^\circ\text{C}, R_G = 2.7 \Omega$ Clamped inductive load, $L = 30 \mu\text{H}$	$I_{CM} = 70$ @ 960	A V
t_{SC} (SCSOA)	$V_{GE} = 15 \text{ V}, V_{CE} = 720 \text{ V}, T_J = 125^\circ\text{C}$ $R_G = 22 \Omega$, non repetitive	10	μs
P_C	$T_C = 25^\circ\text{C}$	350	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.
Weight		6	g
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	$^\circ\text{C}$

TO-247 AD



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

Features

- International standard package JEDEC TO-247
- High frequency IGBT with guaranteed Short Circuit SOA capability
- Fast Fall Time for switching speeds up to 30 kHz
- 3rd generation HDMOS™ process
 - for minimum switching losses
- MOS Gate turn-on
 - drive simplicity

Applications

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

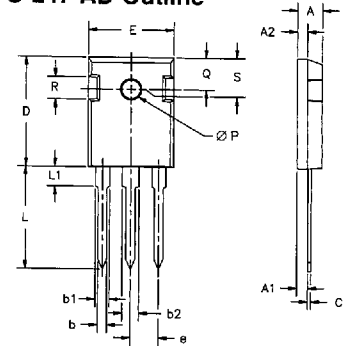
Advantages

- 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.
BV_{CES}	$I_C = 1 \text{ mA}, V_{GE} = 0 \text{ V}$	1200		V
$V_{GE(th)}$	$I_C = 1 \text{ mA}, V_{CE} = V_{GE}$	5	8	9 V
I_{CES}	$V_{CE} = 0.8 \cdot V_{CES}$ $V_{GE} = 0 \text{ V}$ $T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$			400 μA 3 mA
I_{GES}	$V_{CE} = 0 \text{ V}, V_{GE} = \pm 20 \text{ V}$			$\pm 200 \text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}, V_{GE} = 15 \text{ V}$		3.6	3.9 V

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
$I_{C(on)}$	$V_{GE} = 15\text{ V}, V_{CE} = 10\text{ V}$		TBD	A
C_{ies}	$V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}, f = 1\text{ MHz}$		3300	pF
C_{oes}			220	pF
C_{res}			30	pF
Q_g	$I_C = I_{C90}, V_{GE} = 15\text{ V}, V_{CE} = 0.5 V_{CES}$		TBD	nC
Q_{ge}			TBD	nC
Q_{gc}			TBD	nC
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$		90	ns
t_{ri}	$I_C = I_{C90}, V_{GE} = 15\text{ V}, L = 100\text{ }\mu\text{H}$		100	ns
$t_{d(off)}$	$V_{CE} = 960\text{ V}, R_G = 2.7\text{ }\Omega$		200	300 ns
t_{fi}	Switching times may increase for V_{CE} (Clamp) > 960 V, higher T_J		200	600 ns
E_{off}	or increased R_G		9	mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$		90	ns
t_{ri}	$I_C = I_{C90}, V_{GE} = 15\text{ V}, L = 100\text{ }\mu\text{H}$		100	ns
E_{on}	$V_{CE} = 960\text{ V}, R_G = 2.7\text{ }\Omega$		TBD	mJ
$t_{d(off)}$	Remarks: Switching times may increase for V_{CE} (Clamp) > 960 V,		200	ns
t_{fi}	higher T_J or increased R_G		300	ns
E_{off}			12	16 mJ
R_{thJC}				0.35 K/W
R_{thCK}			0.25	K/W

TO-247 AD Outline



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
ØP	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