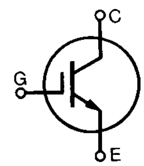
IXYS

HiPerFAST™ IGBT
ISOPLUS247™

	V_{CES}	I_{C25}	$V_{CE(sat)}$	$t_{fi(typ)}$
IXGR 35N120B	1200 V	70 A	3.3 V	160 ns
IXGR 35N120C	1200 V	70 A	4.0 V	115 ns

(Electrically Isolated Backside)



Symbol	Test Conditions	Maximum Ratings	
V_{CES}	T_J = 25°C to 150°C	1200	V
V_{CGR}	T_J = 25°C to 150°C; R_{GE} = 1 MΩ	1200	V
V_{GES}	Continuous	±20	V
V_{GEM}	Transient	±30	V
I_{C25}	T_C = 25°C	70	A
I_{C90}	T_C = 90°C	35	A
I_{CM}	T_C = 25°C, 1 ms	140	A
SSOA (RBSOA)	V_{GE} = 15 V, T_{VJ} = 125°C, R_G = 10 Ω Clamped inductive load	I_{CM} = 90 @ 0.8 V_{CES}	A
P_C	T_C = 25°C	200	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	°C
Weight		5	g

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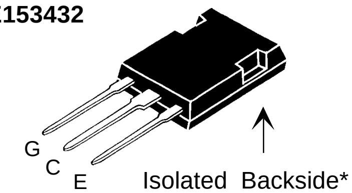


G = Gate, C = Collector
E = Emitter

* Patent pending

Features

- DCB Isolated mounting tab
- Meets TO-247AD package Outline
- 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

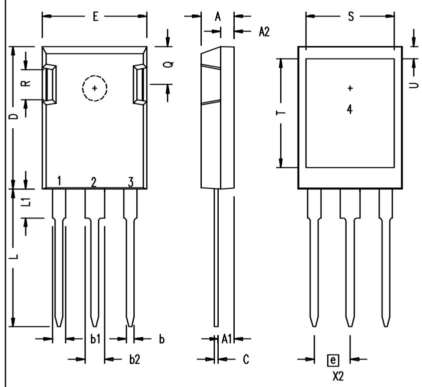
- Easy assembly
- High power density

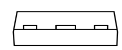
Symbol	Test Conditions		Characteristic Values (T_J = 25°C, unless otherwise specified) Min.	Typ.	Max.	
BV_{CES}	I_C = 1 mA, V_{GE} = 0 V		1200			V
$V_{GE(th)}$	I_C = 750 µA, V_{CE} = V_{GE}		2.5		5.0	V
I_{CES}	V_{CE} = V_{CES} V_{GE} = 0 V; note 1	 T_J = 125°C			250 5	µA mA
I_{GES}	V_{CE} = 0 V, V_{GE} = ±20 V				±100	nA
$V_{CE(sat)}$	I_C = I_{C90}, V_{GE} = 15 V	35N120B			3.3	V
		T_J = 125°C		2.7		V
		35N120C			4.0	V
		T_J = 125°C		3.4		V

Symbol	Test Conditions		Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
g_{fs}	I_C = I_{C90}, V_{CE} = 10 V, Note1		30	40		S
C_{ies}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz			4620		pF
C_{oes}				260		pF
C_{res}				90		pF
Q_g	I_C = I_{C90}, V_{GE} = 15 V, V_{CE} = 0.5 V_{CES}			170		nC
Q_{ge}				28		nC
Q_{gc}				57		nC
$t_{d(on)}$	**Inductive load, T_J = 25°C**			50		ns
t_{ri}	I_C = I_{C90}, V_{GE} = 15 V			27		ns
$t_{d(off)}$	V_{CE} = 0.8 V_{CES}, R_G = R_{off} = 4.7 Ω	35N120B		180	280	ns
	Remarks: Switching times may	35N120C		150	220	ns
t_{fi}	increase for V_{CE} (Clamp) > 0.8 V_{CES},	35N120B		160	320	ns
	higher T_J or increased R_G	35N120C		115	190	ns
E_{off}		35N120B		3.8	7.3	mJ
		35N120C		3.0	4.2	mJ
$t_{d(on)}$	**Inductive load, T_J = 125°C**			55		ns
t_{ri}	I_C = I_{C90}, V_{GE} = 15 V			31		ns
E_{on}	V_{CE} = 0.8 V_{CES}, R_G = R_{off} = 4.7 Ω			2.6		mJ
$t_{d(off)}$	Remarks: Switching times may	35N120B		300		ns
	increase for V_{CE} (Clamp) > 0.8 V_{CES},	35N120C		220		ns
t_{fi}	higher T_J or increased R_G	35N120B		360		ns
		35N120C		260		ns
E_{off}		35N120B		8.0		mJ
		35N120C		6.2		mJ
R_{thJC}					0.5	K/W
R_{thCK}				0.15		K/W

Note: 1. Pulse test, t_p ≤ 300 ms, duty cycle:d ≤ 2 %

ISOPLUS 247 OUTLINE





1 Gate, 2 Drain (Collector)
3 Source (Emitter)
4 no connection

Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	4.83	5.21	.190	.205
A_1	2.29	2.54	.090	.100
A_2	1.91	2.16	.075	.085
b	1.14	1.40	.045	.055
b_1	1.91	2.13	.075	.084
b_2	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