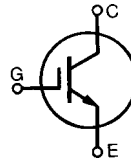


# HiPerFAST™ IGBT

## 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

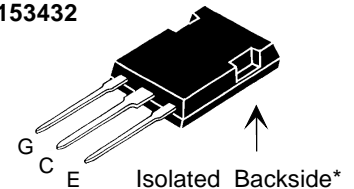
(Electrically Isolated Backside)



Symbol	Test Conditions	Maximum Ratings	
$V_{CES}$	$T_J = 25^\circ\text{C}$ 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	$\pm 20$	V
$V_{GEM}$	Transient	$\pm 30$	V
$I_{C25}$	$T_C = 25^\circ\text{C}$	70	A
$I_{C90}$	$T_C = 90^\circ\text{C}$	35	A
$I_{CM}$	$T_C = 25^\circ\text{C}$ , 1 ms	140	A
<b>SSOA (RBSOA)</b>	$V_{GE} = 15\text{ V}$ , $T_{VJ} = 125^\circ\text{C}$ , $R_G = 10\ \Omega$ Clamped inductive load	$I_{CM} = 90$ @ $0.8 V_{CES}$	A
$P_C$	$T_C = 25^\circ\text{C}$	200	W
$T_J$		-55 ... +150	$^\circ\text{C}$
$T_{JM}$		150	$^\circ\text{C}$
$T_{stg}$		-55 ... +150	$^\circ\text{C}$
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	$^\circ\text{C}$
<b>Weight</b>		5	g

### ISOPLUS 247

E153432



G = Gate,  
E = Emitter  
C = Collector

\* Patent pending

### Features

- DCB Isolated mounting tab
- Meets TO-247AD package Outline
- High current handling capability
- MOS Gate turn-on  
- drive simplicity

### Applications

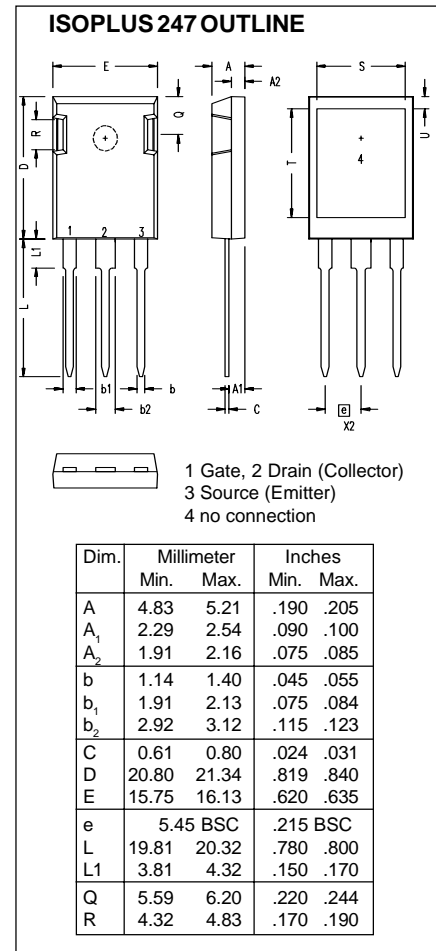
- Uninterruptible power supplies (UPS)
- Switched-mode and resonant-mode power supplies
- AC motor speed control
- DC servo and robot drives
- DC choppers

### Advantages

- Easy assembly
- High power density

Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)		
		Min.	Typ.	Max.
$BV_{CES}$	$I_C = 1\text{ mA}$ , $V_{GE} = 0\text{ V}$	1200		V
$V_{GE(th)}$	$I_C = 750\ \mu\text{A}$ , $V_{CE} = V_{GE}$	2.5		5.0 V
$I_{CES}$	$V_{CE} = V_{CES}$ $V_{GE} = 0\text{ V}$ ; note 1 $T_J = 125^\circ\text{C}$			250 $\mu\text{A}$ 5 mA
$I_{GES}$	$V_{CE} = 0\text{ V}$ , $V_{GE} = \pm 20\text{ V}$			$\pm 100\text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}$ , $V_{GE} = 15\text{ V}$ $T_J = 125^\circ\text{C}$			3.3 V
	$T_J = 125^\circ\text{C}$		2.7	V
	$T_J = 125^\circ\text{C}$		3.4	V

Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)			
		min.	typ.	max.	
$g_{fs}$	$I_C = I_{C90}, V_{CE} = 10\text{ V}$ , Note1	30	40	S	
$C_{ies}$	$V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}, f = 1\text{ MHz}$		4620	pF	
$C_{oes}$			260	pF	
$C_{res}$			90	pF	
$Q_g$	$I_C = I_{C90}, V_{GE} = 15\text{ V}, V_{CE} = 0.5 V_{CES}$		170	nC	
$Q_{ge}$			28	nC	
$Q_{gc}$			57	nC	
$t_{d(on)}$	<b>Inductive load, <math>T_J = 25^\circ\text{C}</math></b> $I_C = I_{C90}, V_{GE} = 15\text{ V}$ $V_{CE} = 0.8 V_{CES}, R_G = R_{off} = 4.7\ \Omega$ Remarks: Switching times may increase for $V_{CE}$ (Clamp) $> 0.8 V_{CES}$ , higher $T_J$ or increased $R_G$		50	ns	
$t_{ri}$			27	ns	
$t_{d(off)}$		35N120B	180	280	ns
		35N120C	150	220	ns
$t_{fi}$		35N120B	160	320	ns
		35N120C	115	190	ns
$E_{off}$		35N120B	3.8	7.3	mJ
		35N120C	3.0	4.2	mJ
$t_{d(on)}$	<b>Inductive load, <math>T_J = 125^\circ\text{C}</math></b> $I_C = I_{C90}, V_{GE} = 15\text{ V}$ $V_{CE} = 0.8 V_{CES}, R_G = R_{off} = 4.7\ \Omega$ Remarks: Switching times may increase for $V_{CE}$ (Clamp) $> 0.8 V_{CES}$ , higher $T_J$ or increased $R_G$		55	ns	
$t_{ri}$			31	ns	
$E_{on}$			2.6	mJ	
$t_{d(off)}$		35N120B	300	ns	
		35N120C	220	ns	
$t_{fi}$		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,  $t_p \leq 300\text{ ms}$ , duty cycle:  $d \leq 2\%$