

NPT³ IGBT with Diode

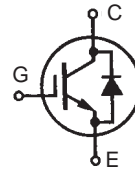
in ISOPLUS 247™

IXER 35N120D1

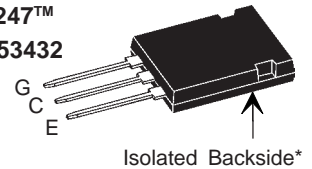
$$I_{C25} = 50 \text{ A}$$

$$V_{CES} = 1200 \text{ V}$$

$$V_{CE(sat)typ.} = 2.2 \text{ V}$$



ISOPLUS 247™
E153432



G = Gate C = Collector E = Emitter

*Patent pending

IGBT		
Symbol	Conditions	Maximum Ratings
V_{CES}	$T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$	1200 V
V_{GES}		± 20 V
I_{C25}	$T_C = 25^{\circ}\text{C}$	50 A
I_{C90}	$T_C = 90^{\circ}\text{C}$	32 A
I_{CM} V_{CEK}	$V_{GE} = \pm 15 \text{ V}; R_G = 39 \Omega; T_{VJ} = 125^{\circ}\text{C}$ RBSOA, Clamped inductive load; $L = 100 \mu\text{H}$	50 A
		V_{CES}
t_{SC} (SCSOA)	$V_{CE} = 900\text{V}; V_{GE} = \pm 15 \text{ V}; R_G = 39 \Omega; T_{VJ} = 125^{\circ}\text{C}$ non-repetitive	10 μs
P_{tot}	$T_C = 25^{\circ}\text{C}$	200 W

Features

- NPT³ IGBT
 - low saturation voltage
 - positive temperature coefficient for easy paralleling
 - fast switching
 - short tail current for optimized performance in resonant circuits
- HiPerFRED™ diode
 - fast reverse recovery
 - low operating forward voltage
 - low leakage current
- ISOPLUS 247™ package
 - isolated back surface
 - low coupling capacity between pins and heatsink
 - high reliability
 - industry standard outline

Applications

- single switches
- choppers with complementary free wheeling diodes
- phaselegs, H bridges, three phase bridges e.g. for
 - power supplies, UPS
 - AC, DC and SR drives
 - induction heating

Symbol	Conditions	Characteristic Values ($T_{VJ} = 25^{\circ}\text{C}$, unless otherwise specified)		
		min.	typ.	max.
$V_{CE(sat)}$	$I_C = 35 \text{ A}; V_{GE} = 15 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$	2.2 2.6		V V
$V_{GE(th)}$	$I_C = 1 \text{ mA}; V_{GE} = V_{CE}$	4.5		6.5 V
I_{CES}	$V_{CE} = V_{CES}; V_{GE} = 0 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$	0.4		0.4 mA mA
I_{GES}	$V_{CE} = 0 \text{ V}; V_{GE} = \pm 20 \text{ V}$			200 nA
$t_{d(on)}$ t_r $t_{d(off)}$ t_f E_{on} E_{off}	Inductive load, $T_{VJ} = 125^{\circ}\text{C}$ $V_{CE} = 600 \text{ V}; I_C = 35 \text{ A}$ $V_{GE} = \pm 15 \text{ V}; R_G = 39 \Omega$	150		ns
		60		ns
		700		ns
		50		ns
		4.2		mJ
		3.5		mJ
C_{ies}	$V_{CE} = 25 \text{ V}; V_{GE} = 0 \text{ V}; f = 1 \text{ MHz}$	2		nF
Q_{Gon}	$V_{CE} = 600 \text{ V}; V_{GE} = 15 \text{ V}; I_C = 30 \text{ A}$	250		nC
R_{thJC} R_{thJH}		1.2		0.6 KW KW

Diode

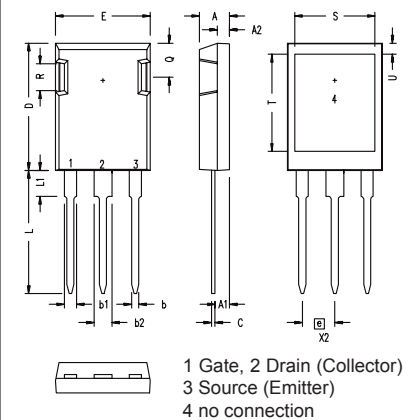
Symbol	Conditions	Maximum Ratings	
I_{F25}	$T_C = 25^\circ\text{C}$	48	A
I_{F90}	$T_C = 90^\circ\text{C}$	25	A

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
V_F	$I_F = 35\text{ A}; T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$	2.5	2.9	V
I_{RM} t_{rr}	} $I_F = 30\text{ A}; di_F/dt = -500\text{ A}/\mu\text{s}; T_{VJ} = 125^\circ\text{C}$ $V_R = 600\text{ V}; V_{GE} = 0\text{ V}$	27		A
		150		ns
R_{thJC} R_{thJH}	(per diode)	2.6	1.3	K/W K/W

Component

Symbol	Conditions	Maximum Ratings	
T_{VJ}		-55...+150	$^\circ\text{C}$
T_{stg}		-55...+125	$^\circ\text{C}$
V_{ISOL}	$I_{ISOL} \leq 1\text{ mA}; 50/60\text{ Hz}$	2500	V~
F_c	mounting force with clip	20...120	N

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
C_p	coupling capacity between shorted pins and mounting tab in the case	30		pF
Weight		6		g

ISOPLUS 247 OUTLINE


Dim.	Millimeter		Inches	
	Min.	Max.	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
S	13.21	13.72	.520	.540
T	15.75	16.26	.620	.640
U	1.65	3.03	.065	.080