

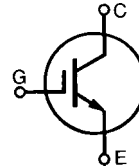
HiPerFAST™ IGBT IXGR 24N60C

ISOPLUS247™

(Electrically Isolated Back Surface)

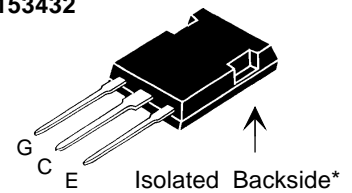
$V_{CES} = 600 \text{ V}$
 $I_{C25} = 42 \text{ A}$
 $V_{CE(sat)} = 2.5 \text{ V}$
 $t_{fi(typ)} = 60 \text{ ns}$

Preliminary data sheet



Symbol	Test Conditions	Maximum Ratings
V_{CES}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	600 V
V_{CGR}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}; R_{GE} = 1 \text{ M}\Omega$	600 V
V_{GES}	Continuous	$\pm 20 \text{ V}$
V_{GEM}	Transient	$\pm 30 \text{ V}$
I_{C25}	$T_C = 25^\circ\text{C}$	42 A
I_{C110}	$T_C = 110^\circ\text{C}$	22 A
I_{CM}	$T_C = 25^\circ\text{C}, 1 \text{ ms}$	80 A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}, T_{VJ} = 125^\circ\text{C}, R_G = 22 \Omega$ Clamped inductive load, $L = 100 \mu\text{H}$	$I_{CM} = 48 \text{ A}$ @ $0.8 V_{CES}$
P_C	$T_C = 25^\circ\text{C}$	80 W
T_J		-40 ... +150 °C
T_{JM}		150 °C
T_{stg}		-40 ... +150 °C
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300 °C
V_{ISOL}	50/60 Hz, RMS, $t = 1 \text{ minute leads-to-tab}$	2500 V
Weight		5 g

ISOPLUS 247



G = Gate, C = Collector
E = Emitter

* Patent pending

Features

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

Applications

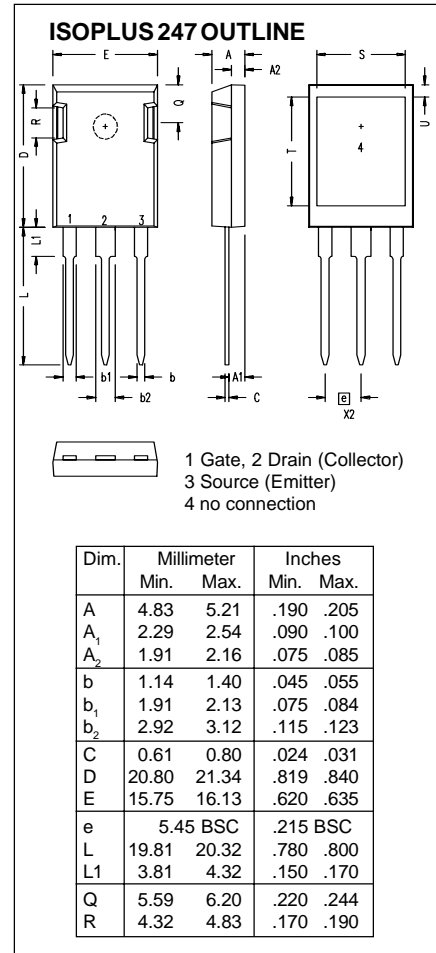
- Uninterruptible power supplies (UPS)
- Switched-mode and resonant-mode power supplies
- AC motor speed control
- DC servo and robot drives
- DC choppers

Advantages

- Easy assembly
- High power density
- Very fast switching speeds for high frequency applications

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
BV_{CES}	$I_C = 250 \mu\text{A}, V_{GE} = 0 \text{ V}$	600		V
$V_{GE(th)}$	$I_C = 250 \mu\text{A}, V_{CE} = V_{GE}$	2.5		5.0 V
I_{CES}	$V_{CE} = 0.8 \cdot V_{CES}$ $V_{GE} = 0 \text{ V}$			$T_J = 25^\circ\text{C}$ $T_J = 150^\circ\text{C}$ 200 μA 1 mA
I_{GES}	$V_{CE} = 0 \text{ V}, V_{GE} = \pm 20 \text{ V}$			$\pm 100 \text{ nA}$
$V_{CE(sat)}$	$I_C = I_T, V_{GE} = 15 \text{ V}$ (see note 1)	2.1	2.5	V

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)			
		min.	typ.	max.	
g_{fs}	$I_C = I_T; V_{CE} = 10\text{ V}$, Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$	9	17	S	
C_{ies}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		1500	pF	
C_{oes}			120	pF	
C_{res}			40	pF	
Q_g	$I_C = I_T$, $V_{GE} = 15\text{ V}$, $V_{CE} = 0.5 V_{CES}$		55	nC	
Q_{ge}			13	nC	
Q_{gc}			17	nC	
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$ $I_C = I_T$, $V_{GE} = 15\text{ V}$ $V_{CE} = 0.8 V_{CES}$, $R_G = R_{off} = 18\ \Omega$ Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 V_{CES}$, higher T_J or increased R_G		15	ns	
t_{ri}			25	ns	
$t_{d(off)}$			75	140	ns
t_{fi}			60	110	ns
E_{off}			0.24	0.36	mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$ $I_C = I_T$, $V_{GE} = 15\text{ V}$ $V_{CE} = 0.8 V_{CES}$, $R_G = R_{off} = 18\ \Omega$ Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 V_{CES}$, higher T_J or increased R_G		15	ns	
t_{ri}			12	ns	
E_{on}			0.15	mJ	
$t_{d(off)}$			130	ns	
t_{fi}			110	ns	
E_{off}			0.6	mJ	
R_{thJC}			1.57	K/W	
R_{thCK}		0.15		K/W	



Note: 1. $I_T = 24\text{ A}$