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With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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# HiPerFAST™ IGBT

## Lightspeed Series

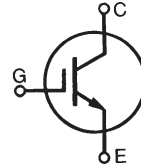
### ISOPLUS247™ package

(Electrically Isolated Back Side)

## IXGR 32N60C

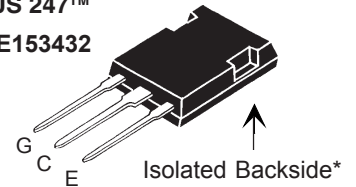
$V_{CE} = 600 \text{ V}$   
 $I_{C25} = 45 \text{ A}$   
 $V_{CE(sat)} = 2.7 \text{ V}$   
 $t_{fi \text{ typ}} = 55 \text{ ns}$

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	$\pm 20$	V
$V_{GEM}$	Transient	$\pm 30$	V
$I_{C25}$	$T_C = 25^\circ\text{C}$	45	A
$I_{C110}$	$T_C = 110^\circ\text{C}$	26	A
$I_{CM}$	$T_C = 25^\circ\text{C}$ , 1 ms	120	A
<b>SSOA (RBSOA)</b>	$V_{GE} = 15 \text{ V}$ , $T_{VJ} = 125^\circ\text{C}$ , $R_G = 10 \Omega$ Clamped inductive load, $L = 100 \mu\text{H}$	$I_{CM} = 64$ @ $0.8 V_{CES}$	A
$P_c$	$T_C = 25^\circ\text{C}$	140	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	$^\circ\text{C}$
$V_{ISOL}$	50/60 Hz, RMS, $t = 1$ minute leads-to-tab	2500	V
<b>Weight</b>		6	g

ISOPLUS 247™  
E153432



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

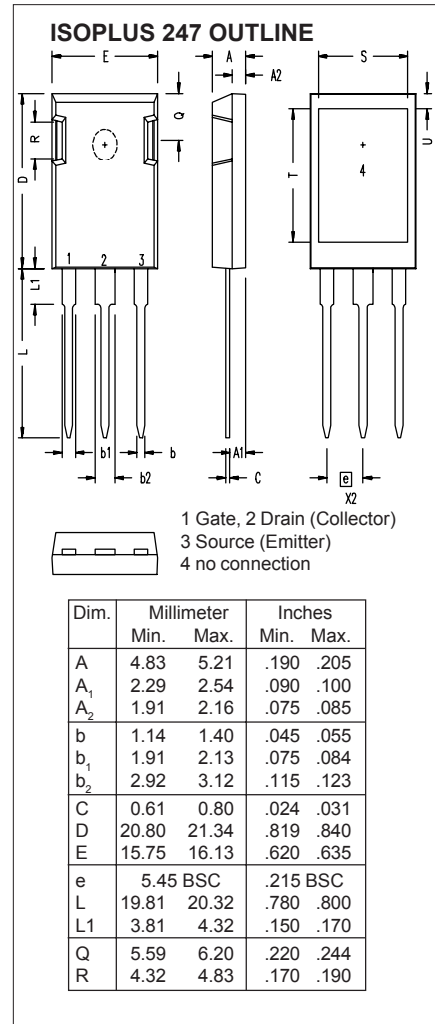
### Advantages

- 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.
$V_{GE(th)}$	$I_C = 250 \mu\text{A}$ , $V_{CE} = V_{GE}$	2.5		5 V
$I_{CES}$	$V_{CE} = V_{CES}$ $V_{GE} = 0 \text{ V}$		$T_J = 25^\circ\text{C}$ $T_J = 150^\circ\text{C}$	200 $\mu\text{A}$ 1 mA
$I_{GES}$	$V_{CE} = 600 \text{ V}$ , $V_{GE} = \pm 20 \text{ V}$			$\pm 100 \text{ nA}$
$V_{CE(sat)}$	$I_C = I_T$ , $V_{GE} = 15 \text{ V}$ (see note 1)	2.3	2.7	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 $\leq 2\%$		25	S
$C_{ies}$	$V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}, f = 1\text{ MHz}$		2700	pF
$C_{oes}$			190	pF
$C_{res}$			50	pF
$Q_g$	$I_C = I_T, V_{GE} = 15\text{ V}, V_{CE} = 0.5 V_{CES}$		110	nC
$Q_{ge}$			22	nC
$Q_{gc}$			40	nC
$t_{d(on)}$	<b>Inductive load, <math>T_J = 25^\circ\text{C}</math></b> $I_C = I_T, V_{GE} = 15\text{ V}, L = 100\ \mu\text{H}$ , $V_{CE} = 0.8 V_{CES}, R_G = R_{off} = 4.7\ \Omega$ Remarks: Switching times may increase for $V_{CE}(\text{Clamp}) > 0.8 \cdot V_{CES}$ , higher $T_J$ or increased $R_G$		25	ns
$t_{ri}$			20	ns
$t_{d(off)}$			85	170 ns
$t_{fi}$			55	ns
$E_{off}$			0.32	0.75 mJ
$t_{d(on)}$	<b>Inductive load, <math>T_J = 150^\circ\text{C}</math></b> $I_C = I_T, V_{GE} = 15\text{ V}, L = 100\ \mu\text{H}$ $V_{CE} = 0.8 V_{CES}, R_G = R_{off} = 4.7\ \Omega$ Remarks: Switching times may increase for $V_{CE}(\text{Clamp}) > 0.8 \cdot V_{CES}$ , higher $T_J$ or increased $R_G$		25	ns
$t_{ri}$			25	ns
$E_{on}$			0.30	mJ
$t_{d(off)}$			110	ns
$t_{fi}$			105	ns
$E_{off}$			0.85	mJ
$R_{thJC}$			0.90	K/W
$R_{thCK}$		0.15		K/W

Note 1:  $I_T = 32\text{ A}$



IXYS reserves the right to change limits, test conditions, and dimensions.

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents:	4,835,592	4,931,844	5,049,961	5,237,481	6,162,665	6,404,065B1	6,683,344	6,727,585
	4,850,072	5,017,508	5,063,307	5,381,025	6,259,123B1	6,534,343	6,710,405B2	6,710,463
	4,881,106	5,034,796	5,187,117	5,486,715	6,306,728 B1	6,583,505		

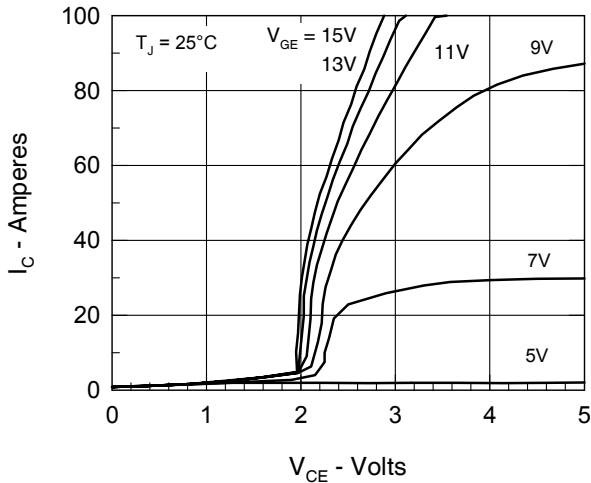


Fig. 1. Output Characteristics

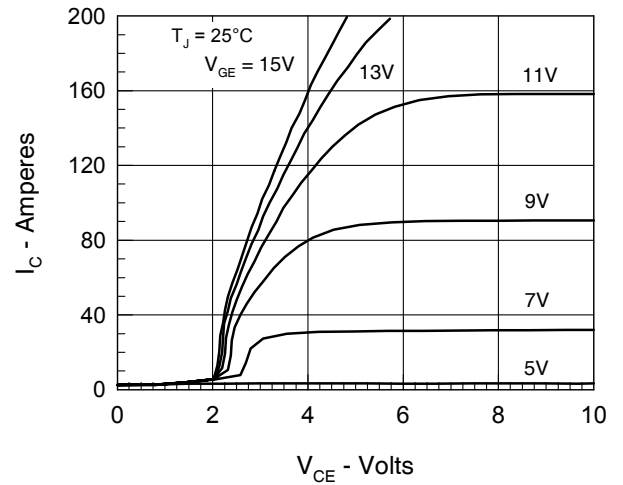


Fig. 2. Extended Output Characteristics

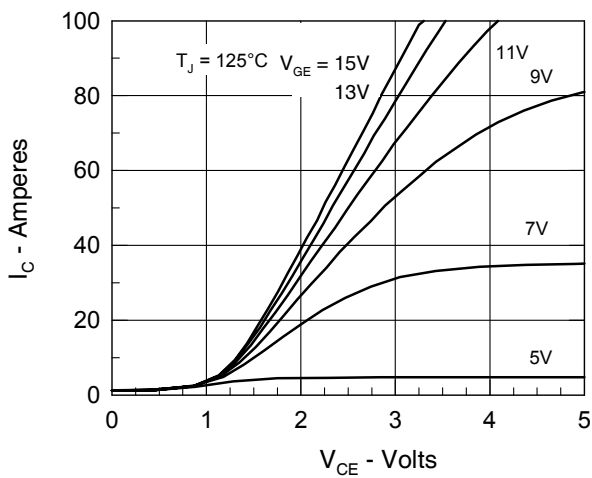


Fig. 3. High Temperature Output Characteristics

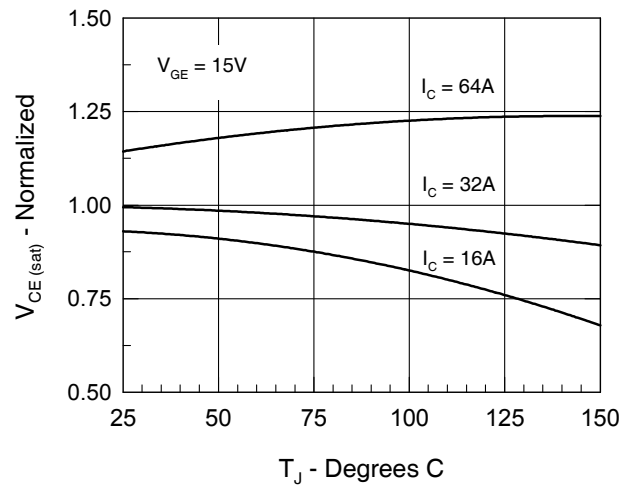
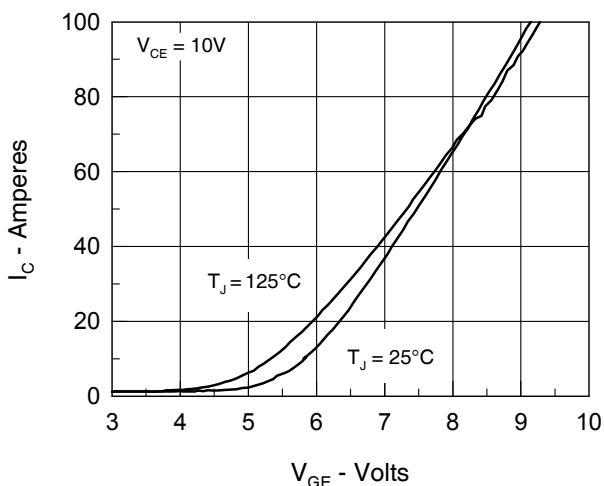

 Fig. 4. Temperature Dependence of  $V_{CE(sat)}$ 


Fig. 5. Admittance Curves

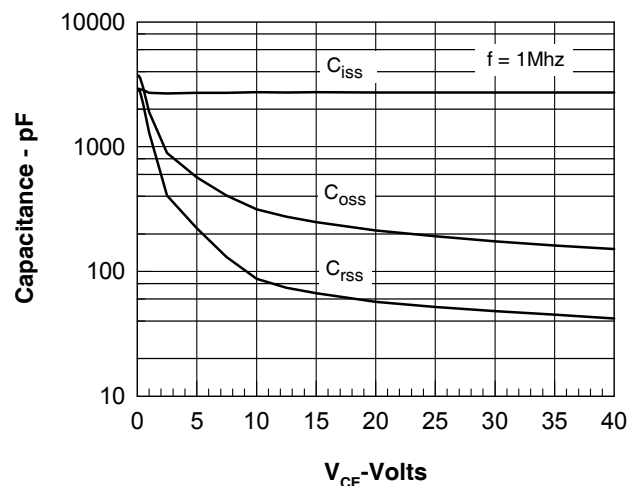


Fig. 6. Capacitance Curves

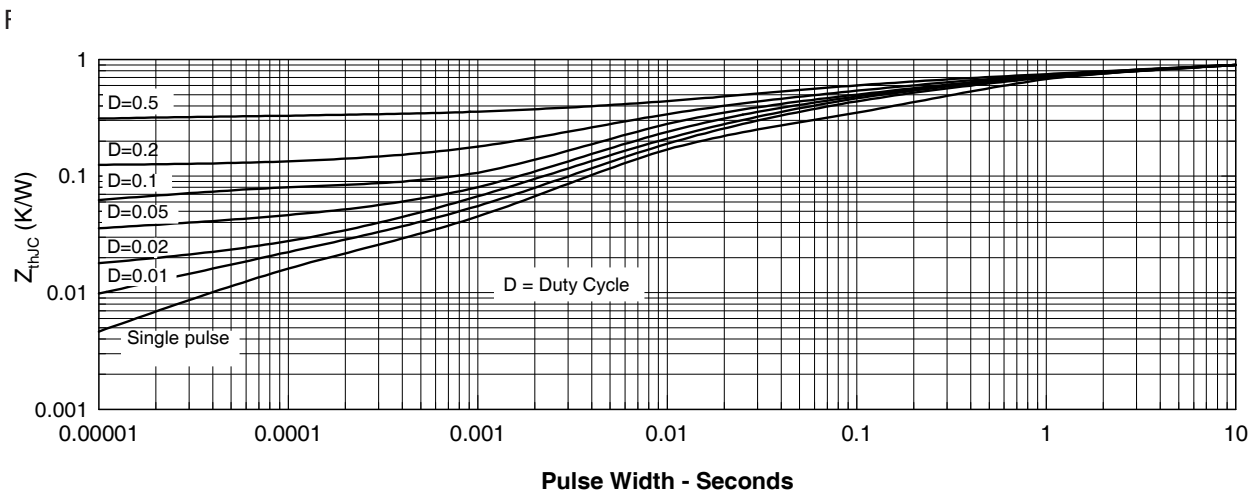
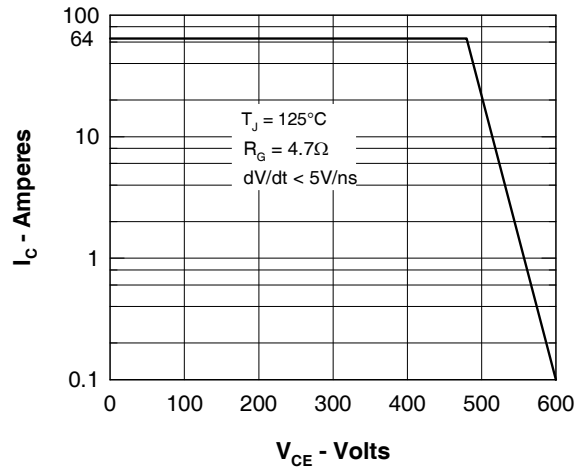
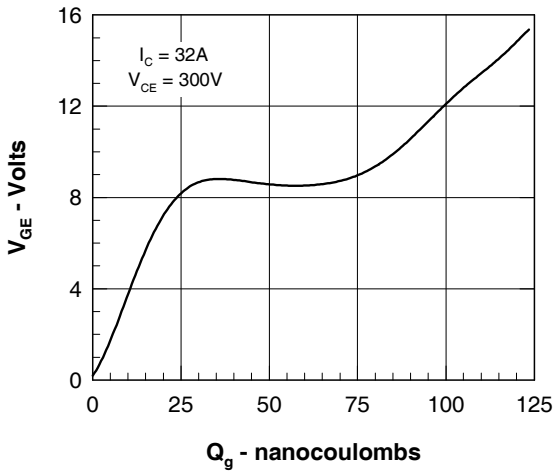
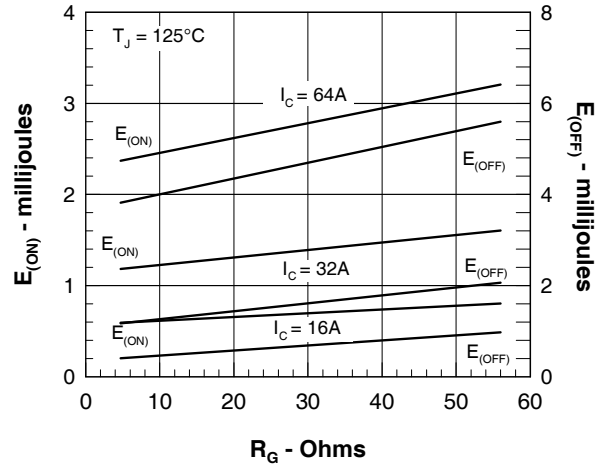
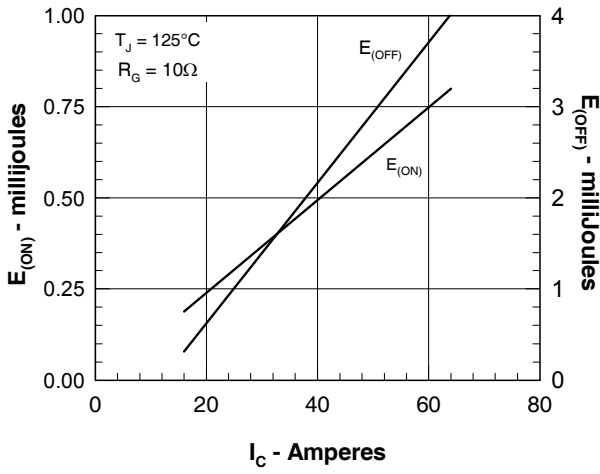


Fig. 11. Transient Thermal Resistance