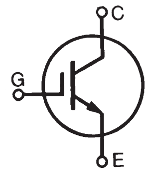
IXYS

High Voltage IGBT

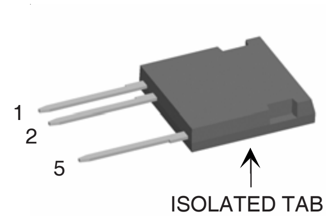
IXGF32N170

(Electrically Isolated Tab)



V_{CES} = 1700V
I_{C110} = 19A
$V_{CE(sat)}$ ≤ 3.5V
$t_{fi(typ)}$ = 250ns

ISOPLUS i4-Pak™



1 = Gate
2 = Emitter
5 = Collector

Symbol	Test Conditions	Maximum Ratings	
V_{CES}	T_J = 25°C to 150°C	1700	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	T_C = 25°C	44	A
I_{C110}	T_C = 110°C	19	A
I_{CM}	T_C = 25°C, 1ms	200	A
SSOA (RBSOA)	V_{GE}= 15V, T_{VJ} = 125°C, R_G = 2.7Ω Clamped Inductive Load	I_{CM} = 70 @ 0.8 • V_{CES}	A
t_{sc}	T_C = 125°C, V_{CE} = 1200V, V_{GE} = 15V, R_G = 10Ω	10	μs
P_C	T_C = 25°C	200	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
T_L	1.6 mm (0.062 in.) from Case for 10s	300	°C
T_{SOLD}	Plastic Body for 10s	260	°C
F_C	Mounting Force	20..120 / 4.5..27	Nm/lb.in.
V_{ISOL}	50/60Hz, 1 minute	2500	V~
Weight		5	g

Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
BV_{CES}	I_C = 1mA, V_{GE} = 0V	1700			V
$V_{GE(th)}$	I_C = 250μA, V_{CE} = V_{GE}	3.0		5.0	V
I_{CES}	V_{CE} = 0.8 • V_{CES}, V_{GE}= 0V, Note 2			50	μA
	T_J = 125°C			1	mA
I_{GES}	V_{CE} = 0V, V_{GE} = ±20V			±100	nA
$V_{CE(sat)}$	I_C = 32A, V_{GE} = 15V, Note 1		2.7	3.5	V
	T_J = 125°C		3.3		V

Features

- Electrically Isolated Tab
- High Current Handling Capability
- Rugged NPT Structure
- Molding Epoxies Meet UL 94 V-0 Flammability Classification

Applications

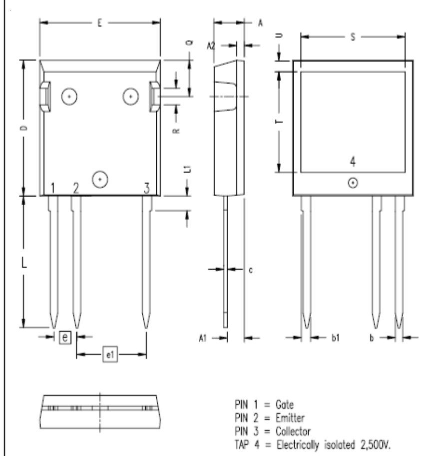
- Capacitor Discharge & Pulser Circuits
- AC Motor Drives
- Uninterruptible Power Supplies (UPS)
- Switched-Mode and Resonant-Mode Power Supplies

Advantages

- High Power Density
- Suitable for Surface Mounting

Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Min.	Typ.	Max.	Unit
g_{fs}	I_C = 32A, V_{CE} = 10V, Note 1	20	30		S
C_{ies}	V_{CE} = 25V, V_{GE} = 0V, f = 1MHz		4290		pF
C_{oes}			167		pF
C_{res}			47		pF
Q_g	I_C = 32A, V_{GE} = 15V, V_{CE} = 0.5 • V_{CES}		146		nC
Q_{ge}			28		nC
Q_{gc}			52		nC
$t_{d(on)}$	**Inductive load, T_J = 25°C**		45		ns
t_{ri}	I_C = 32A, V_{GE} = 15V		38		ns
$t_{d(off)}$	V_{CE} = 0.6 • V_{CES}, R_G = 2.7Ω		270	500	ns
t_{fi}			250	500	ns
E_{off}			10.6	20	mJ
$t_{d(on)}$	**Inductive load, T_J = 125°C**		48		ns
t_{ri}	I_C = 32A, V_{GE} = 15V		42		ns
E_{off}	V_{CE} = 0.6 • V_{CES}, R_G = 2.7Ω		6.0		mJ
$t_{d(off)}$			360		ns
t_{fi}			560		ns
E_{off}			13.5		mJ
R_{thJC}				0.62	°C/W
R_{thCS}			0.15		°C/W
R_{thJA}			30		°C/W

ISOPLUS i4-Pak™ (HV) (IXGF) Outline



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.190	.205	4.83	5.21
A1	.102	.118	2.59	3.00
A2	.046	.085	1.17	2.16
b	.045	.055	1.14	1.40
b1	.058	.068	1.47	1.73
C	.020	.029	0.51	0.74
D	.819	.840	20.80	21.34
E	.770	.799	19.56	20.29
e	.150 BSC		3.81 BSC	
e1	.450 BSC		11.43 BSC	
L	.780	.840	19.81	21.34
L1	.083	.102	2.11	2.59
Q	.210	.244	5.33	6.20
R	.100	.180	2.54	4.57
S	.660	.690	16.76	17.53
T	.590	.620	14.99	15.75
U	.065	.080	1.65	2.03

Notes: 1. Pulse test, t < 300μs; duty cycle, d < 2%.
2. Device must be heatsunk for high temperature leakage current measurements to avoid thermal runaway.

Fig. 1. Output Characteristics @ 25ºC

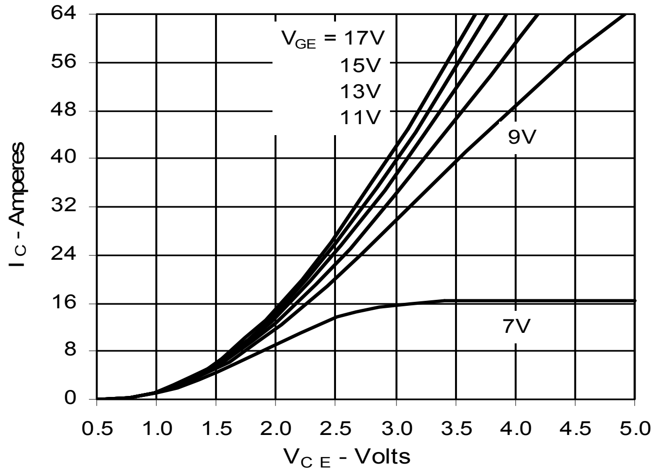


Fig. 2. Extended Output Characteristics @ 25ºC

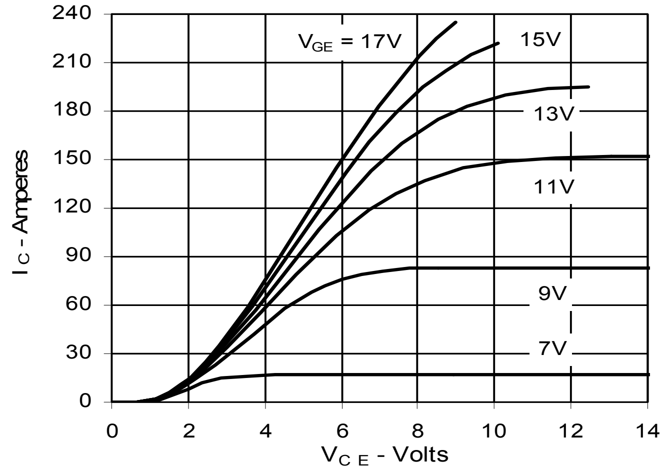


Fig. 3. Output Characteristics @ 125ºC

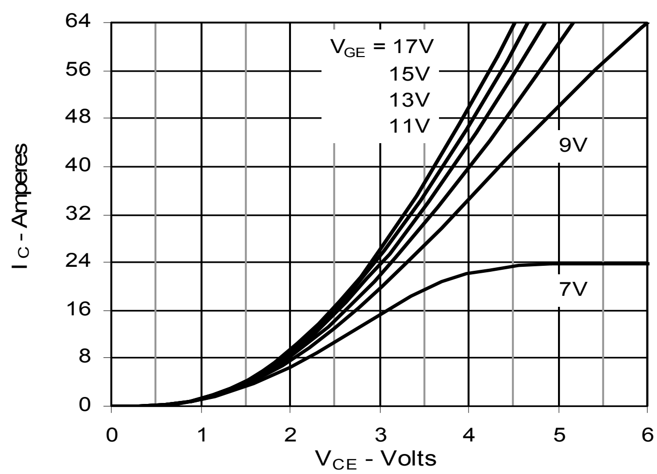


Fig. 4. Dependence of $V_{CE(sat)}$ on Temperature

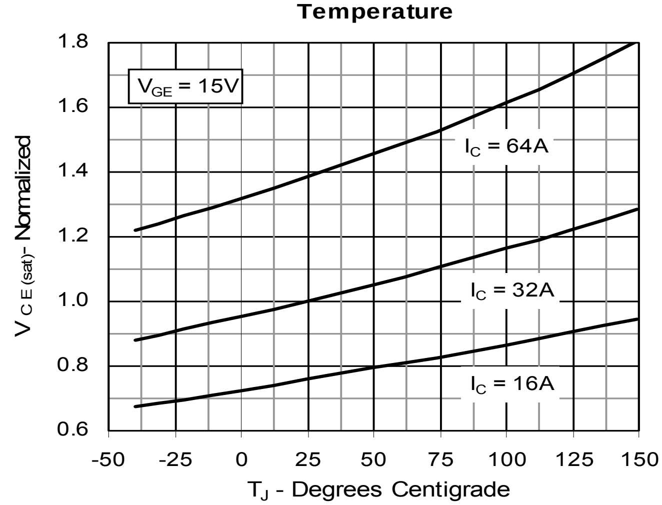


Fig. 5. Collector-to-Emitter Voltage vs. Gate-to-Emiiter voltage

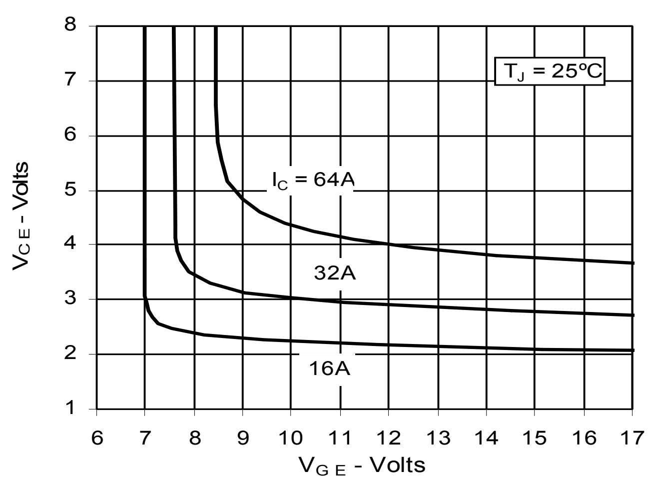


Fig. 6. Input Admittance

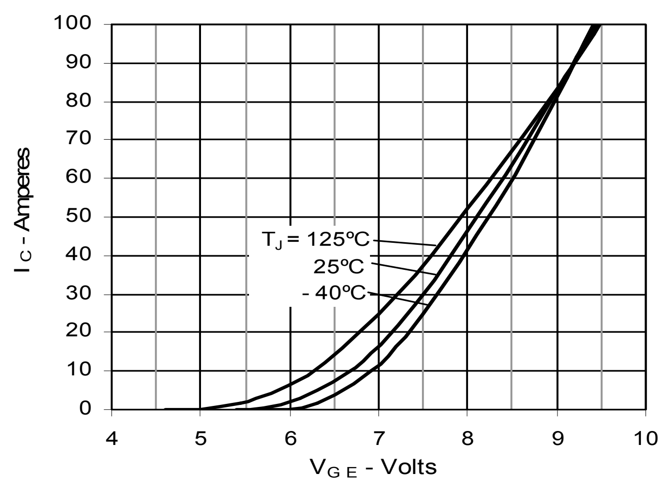


Fig. 7. Transconductance

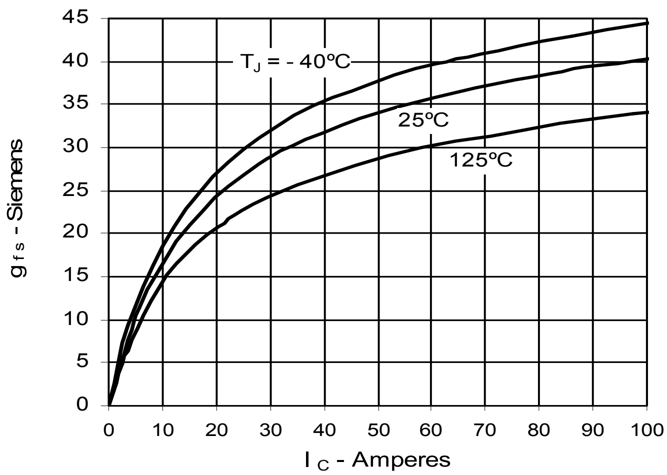


Fig. 8. Gate Charge

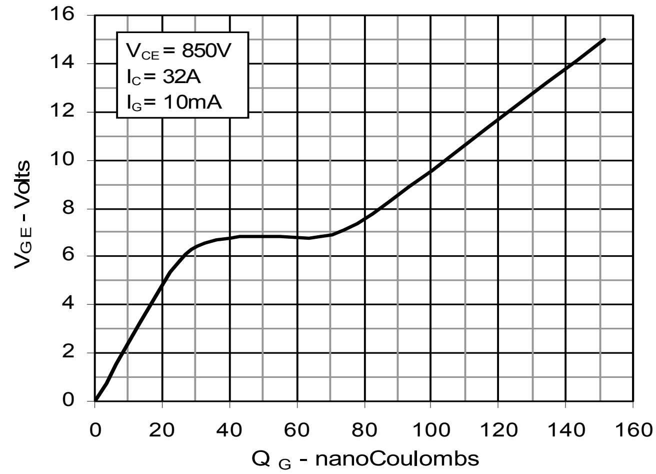


Fig. 9. Capacitance

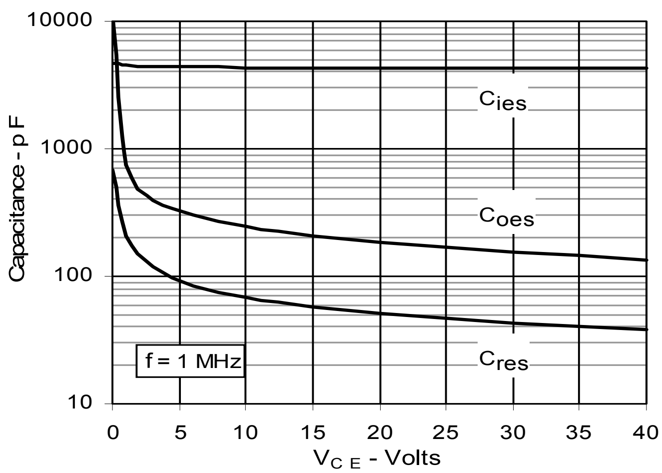


Fig. 10. Dependence of E_{off} on R_G

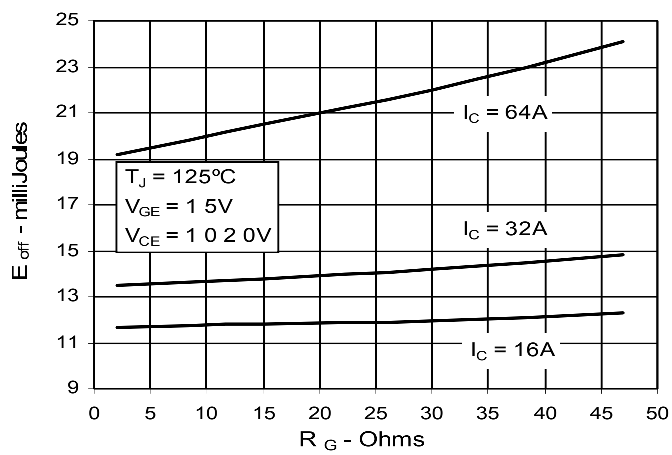


Fig. 11. Dependence of E_{off} on I_C

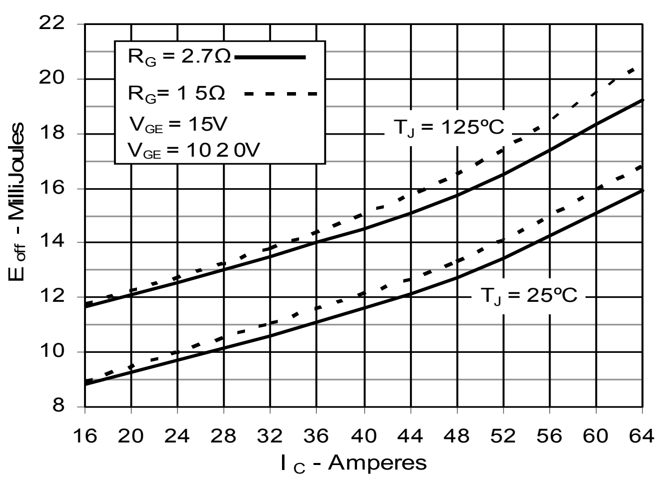


Fig. 12. Dependence of E_{off} on Temperature

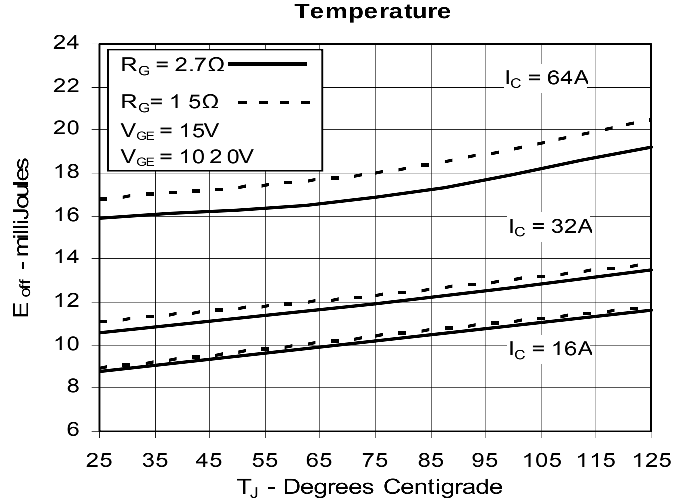


Fig. 13. Maximum Transient Thermal Impedance