

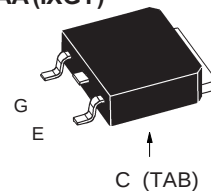
High Voltage IGBT

IXGY 2N120

V_{CES}	I_{C90}	$V_{CE(SAT)}$
1200 V	2.0 A	3 V

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	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^{\circ}\text{C}$	5	A
I_{C90}	$T_C = 90^{\circ}\text{C}$	2	A
I_{CM}	$T_C = 25^{\circ}\text{C}, 1 \text{ ms}$	8	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}, T_J = 125^{\circ}\text{C}, R_G = 150 \Omega$ Clamped inductive load	$I_{CM} = 6$ @ $0.8 V_{CES}$	A
P_C	$T_C = 25^{\circ}\text{C}$	25	W
T_J		-55 ... +150	$^{\circ}\text{C}$
T_{JM}		150	$^{\circ}\text{C}$
T_{STG}		-55 ... +150	$^{\circ}\text{C}$
Weight		0.8	g
Max. Lead Temperature for Soldering (1.6mm from case for 10s)		300	$^{\circ}\text{C}$

TO-252 AA (IXGY)



G = Gate
E = Emitter

C = Collector
TAB = Collector

Features

- International standard package
- Low $V_{CE(sat)}$
- for low on-state conduction losses
- High current handling capability
- MOS Gate turn-on
- drive simplicity

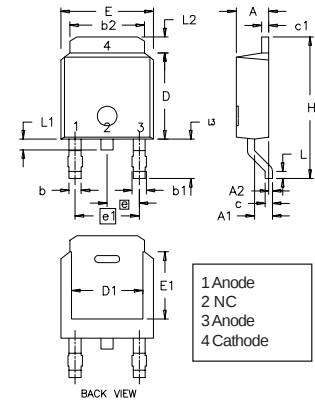
Applications

- Capacitor discharge
- Anode triggering of thyristors
- DC choppers
- Switched-mode and resonant-mode power supplies.

Symbol	Test Conditions ($T_J = 25^{\circ}\text{C}$ unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{CES}	$I_C = 25 \mu\text{A}, V_{GE} = 0 \text{ V}$	1200		V
$V_{GE(th)}$	$I_C = 25 \mu\text{A}, V_{CE} = V_{GE}$	2.5		5.0 V
I_{CES}	$V_{CE} = 0.8 V_{CES}$ $V_{GE} = 0 \text{ V}$			10 μA
	$T_J = 25^{\circ}\text{C}$ $T_J = 125^{\circ}\text{C}$			200 μA
I_{GES}	$V_{CE} = 0 \text{ V}, V_{GE} = \pm 20 \text{ V}$			$\pm 50 \text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}, V_{GE} = 15 \text{ V}$	2.5	3.0	V
	$I_C = I_{C25}, V_{GE} = 15 \text{ V}$	3.8	4.5	V
	$I_C = I_{C25}, T = 125^{\circ}\text{C}$	4.5		V

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$I_C = I_{C90}, V_{CE} = 15\text{ V}$, Pulse test, $t < 300\text{ }\mu\text{s}$, duty cycle $< 2\%$	1.5	2.5	S
C_{ies}	$V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}, f = 1\text{ MHz}$		110	pF
C_{oes}			12	pF
C_{res}			2	pF
Q_g	$I_C = I_{C90}, V_{GE} = 15\text{ V}, V_{CE} = 0.5 V_{CES}$		9.0	nC
Q_{ge}			1.6	nC
Q_{gc}			3.2	nC
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$ $I_C = I_{C90}, V_{GE} = 15\text{ V}$ $R_G = 150\text{ }\Omega$ $V_{CLAMP} = 0.8 V_{CES}$ Note 1		15	ns
t_{ri}			25	ns
$t_{d(off)}$			300	ns
t_{fi}			360	ns
E_{off}			0.6	mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$ $I_C = I_{C90}, V_{GE} = 15\text{ V}$ $R_G = R_{(off)} = 150\text{ }\Omega$ $V_{CLAMP} = 0.8 V_{CES}$ Note 1		15	ns
t_{ri}			30	ns
$t_{d(off)}$			500	μs
t_{fi}			500	ns
E_{off}			1.2	mJ
R_{thJC}			4.2	K/W

TO-252 AA Outline (IXGY)



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.19	2.38	0.086	0.094
A1	0.89	1.14	0.035	0.045
A2	0	0.13	0	0.005
b	0.64	0.89	0.025	0.035
b1	0.76	1.14	0.030	0.045
b2	5.21	5.46	0.205	0.215
c	0.46	0.58	0.018	0.023
c1	0.46	0.58	0.018	0.023
D	5.97	6.22	0.235	0.245
D1	4.32	5.21	0.170	0.205
E	6.35	6.73	0.250	0.265
E1	4.32	5.21	0.170	0.205
e	2.28 BSC		0.090 BSC	
e1	4.57 BSC		0.180 BSC	
H	9.40	10.42	0.370	0.410
L	0.51	1.02	0.020	0.040
L1	0.64	1.02	0.025	0.040
L2	0.89	1.27	0.035	0.050
L3	2.54	2.92	0.100	0.115

Notes: 1. Switching times may increase for V_{CE} (Clamp) $> 0.8 V_{CES}$, higher T_J or increased R_G .

Fig. 1. Saturation Voltage Characteristics @ 25°C

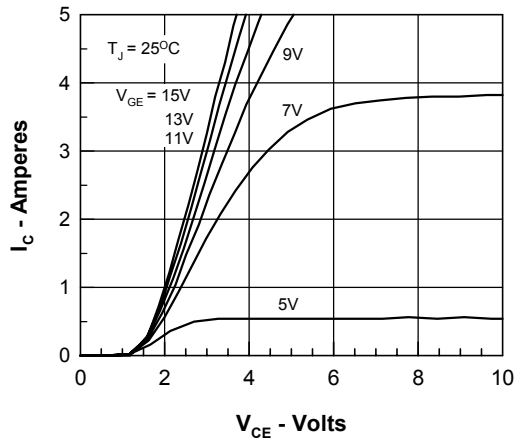


Fig. 2. Extended Output Characteristics

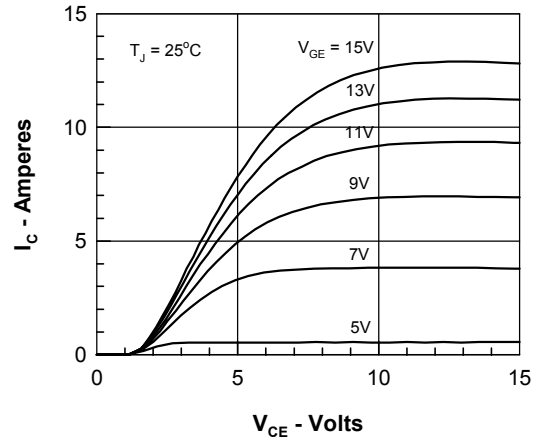


Fig. 3. Saturation Voltage Characteristics @ 125°C

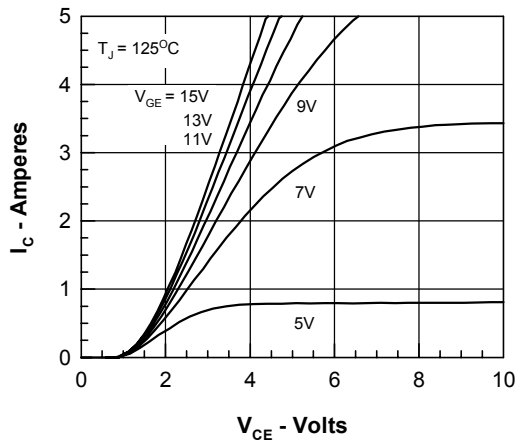
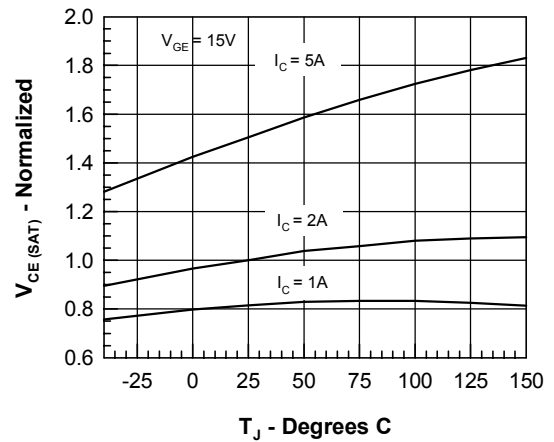

Fig. 4. Temperature Dependence of $V_{CE(SAT)}$


Fig. 5. Admittance Curves

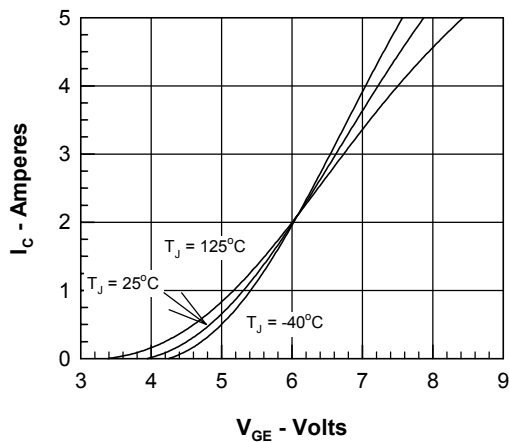


Fig. 6. Capacitance Curves

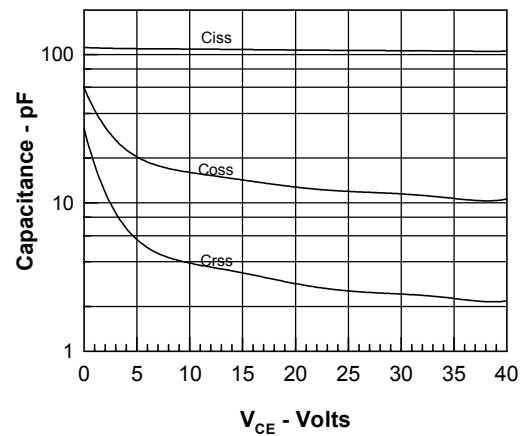


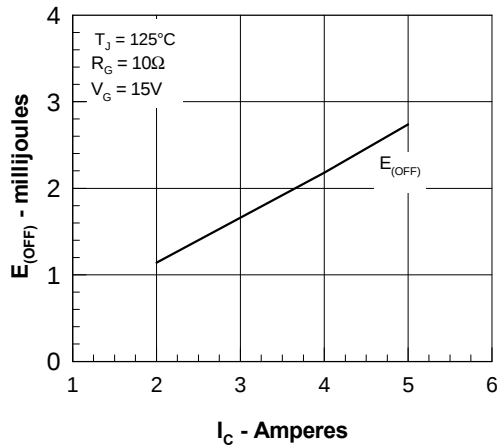
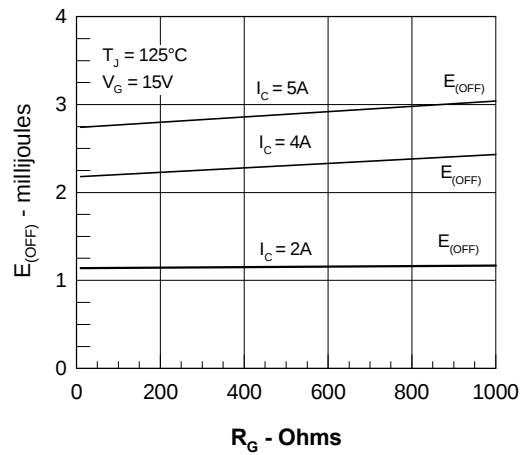
Fig. 7. Dependence of E_{OFF} on I_C .

Fig. 8. Dependence of E_{OFF} on R_G .


Fig. 9. Gate Charge

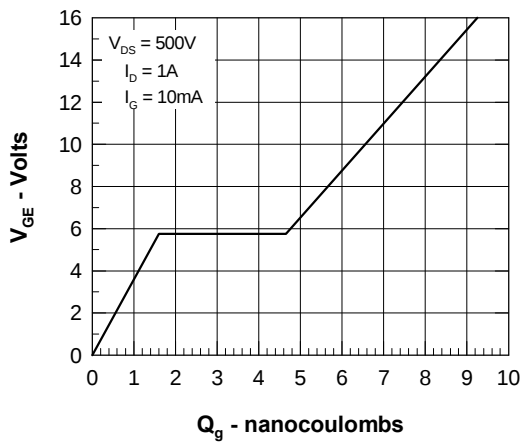


Fig. 10. Turn-off Safe Operating Area

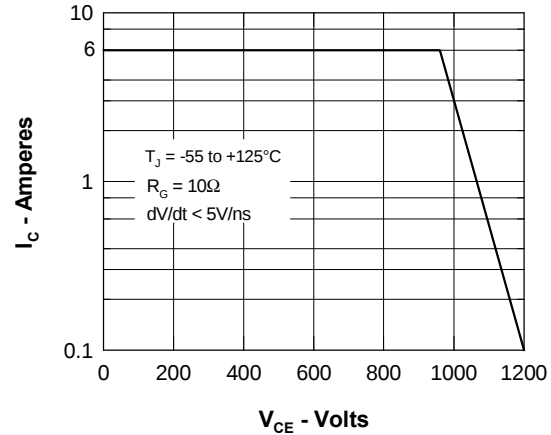


Fig. 11. Transient Thermal Resistance

