Excellent Integrated System Limited

Stocking Distributor

Click to view price, real time Inventory, Delivery & Lifecycle Information:

IXYS Corporation
IXGN400N60A3

For any questions, you can email us directly:
sales@integrated-circuit.com

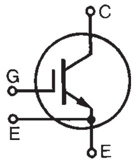
IXYS

GenX3™ 600V IGBT

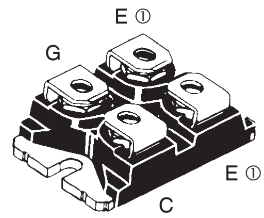
IXGN400N60A3

V_{CES} = 600V
I_{C25} = 400A
$V_{CE(sat)}$ ≤ 1.25V

Ultra-Low-Vsat PT IGBT for
up to 5kHz Switching



SOT-227B, miniBLOC
E153432



G = Gate, C = Collector, E = Emitter
① either emitter terminal can be used as Main or Kelvin Emitter

Symbol	Test Conditions		Maximum Ratings	
V_{CES}	T_J = 25°C to 150°C		600	V
V_{CGR}	T_J = 25°C to 150°C, R_{GE} = 1MΩ		600	V
V_{GES}	Continuous		±20	V
V_{GEM}	Transient		±30	V
I_{C25}	T_C = 25°C (Chip Capability)		400	A
I_{C110}	T_C = 110°C		190	A
I_{LRMS}	Terminal Current Limit		200	A
I_{CM}	T_C = 25°C, 1ms		800	A
SSOA	V_{GE}= 15V, T_{VJ} = 125°C, R_G = 0.5Ω		I_{CM} = 400	A
(RBSOA)	Clamped Inductive Load		@ 0.8 • V_{CES}	
P_C	T_C = 25°C		830	W
T_J			-55 ... +150	°C
T_{JM}			150	°C
T_{stg}			-55 ... +150	°C
V_{ISOL}	50/60Hz	t = 1min	2500	V~
	I_{ISOL} ≤ 1mA	t = 1s	3000	V~
M_d	Mounting Torque		1.5/13	Nm/lb.in.
	Terminal Connection Torque (M4)		1.3/11.5	Nm/lb.in.
Weight			30	g

Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
BV_{CES}	I_C = 1mA, V_{GE} = 0V	600			V
$V_{GE(th)}$	I_C = 4mA, V_{CE} = V_{GE}	3.0		5.0	V
I_{CES}	V_{CE} = V_{CES}, V_{GE} = 0V			250	µA
	T_J = 125°C			2.5	mA
I_{GES}	V_{CE} = 0V, V_{GE} = ±20V			±400	nA
$V_{CE(sat)}$	I_C = 100A, V_{GE} = 15V, Note 1		1.05	1.25	V
	I_C = 400A		1.55		V

Features

- Optimized for Low Conduction losses
- Square RBSOA
- High Current Capability
- Isolation Voltage 3000 V~
- International Standard Package

Advantages

- High Power Density
- Low Gate Drive Requirement

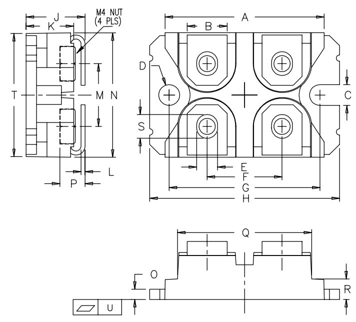
Applications

- Power Inverters
- UPS
- Motor Drives
- SMPS
- PFC Circuits
- Battery Chargers
- Welding Machines
- Lamp Ballasts
- Inrush Current Protection Circuits

IXYS IXGN400N60A3

Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
g_{fs}	I_C = 60A, V_{CE} = 10V, Note 1	85	140		S
C_{ies}	V_{CE} = 25V, V_{GE} = 0 V, f = 1MHz		32		nF
C_{oes}			1450		pF
C_{res}			66		pF
$Q_{g(on)}$	I_C = 100V, V_{GE} = 15V, V_{CE} = 0.5 • V_{CES}		870		nC
Q_{ge}			120		nC
Q_{gc}			300		nC
$t_{d(on)}$	**Resistive load, T_J = 25°C**		25		ns
t_r	I_C = 100A, V_{GE} = 15V		95		ns
$t_{d(off)}$	V_{CE} = 400V, R_G = 0.5Ω		170		ns
t_f			270		ns
$t_{d(on)}$	**Resistive load, T_J = 125°C**		27		ns
t_r	I_C = 100A, V_{GE} = 15V		97		ns
$t_{d(off)}$	V_{CE} = 400V, R_G = 0.5Ω		190		ns
t_f			650		ns
R_{thJC}				0.15	°C/W
R_{thCK}			0.05		°C/W

SOT-227B miniBLOC (IXGN)



SYM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS MAX
A	1.240	1.255	31.50	31.88
B	.307	.323	7.80	8.20
C	.161	.169	4.09	4.29
D	.161	.169	4.09	4.29
E	.161	.169	4.09	4.29
F	.587	.595	14.91	15.11
G	1.186	1.193	30.12	30.30
H	1.496	1.505	38.00	38.23
J	.460	.481	11.68	12.22
K	.351	.378	8.92	9.60
L	.030	.033	0.76	0.84
M	.496	.506	12.60	12.85
N	.990	1.001	25.15	25.42
O	.078	.084	1.98	2.13
P	.195	.235	4.95	5.97
Q	1.045	1.059	26.54	26.90
R	.155	.174	3.94	4.42
S	.186	.191	4.72	4.85
T	.968	.987	24.59	25.07
U	-.002	.004	-0.05	0.1

Note 1. Pulse test, t ≤ 300μs; duty cycle, d ≤ 2%.

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents: 4,835,592 4,850,072 4,881,106 4,931,844 5,017,508 5,034,796 5,049,961 5,063,307 5,187,117 5,237,481 5,381,025 5,486,715 6,162,665 6,259,123 B1 6,306,728 B1 6,404,065 B1 6,534,343 6,583,505 6,683,344 6,710,405 B2 6,710,463 6,727,585 6,759,692 6,771,478 B2 7,005,734 B2 7,063,975 B2 7,071,537 7,157,338B2

Fig. 1. Extended Output Characteristics @ 25ºC

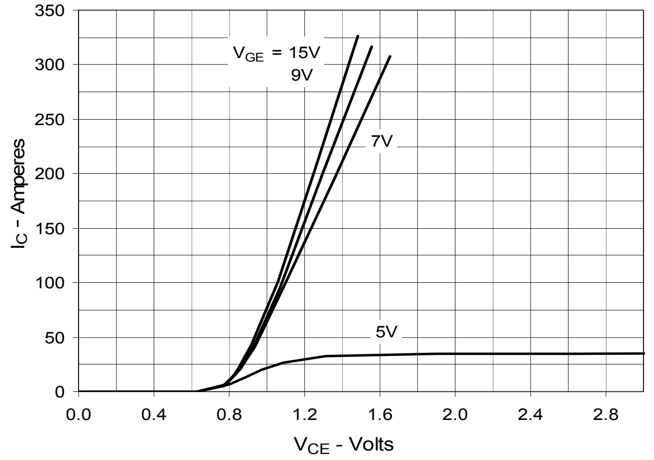


Fig. 2. Output Characteristics @ 125ºC

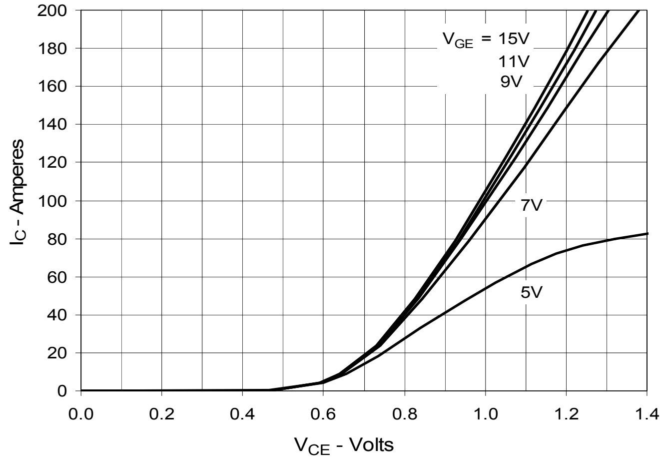


Fig. 3. Dependence of $V_{CE(sat)}$ on Junction Temperature

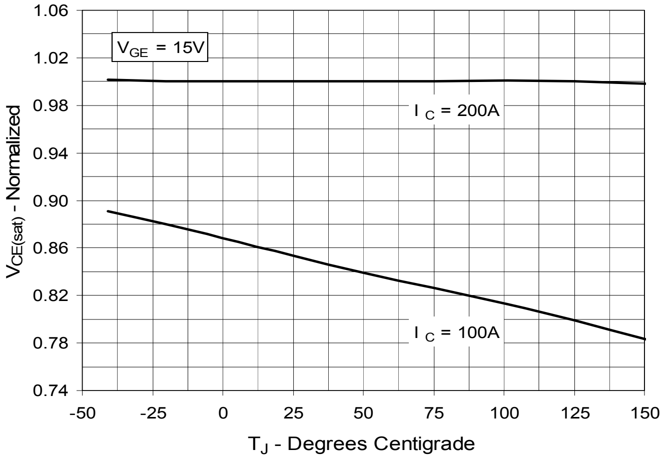


Fig. 4. Collector-to-Emitter Voltage vs. Gate-to-Emitter Voltage

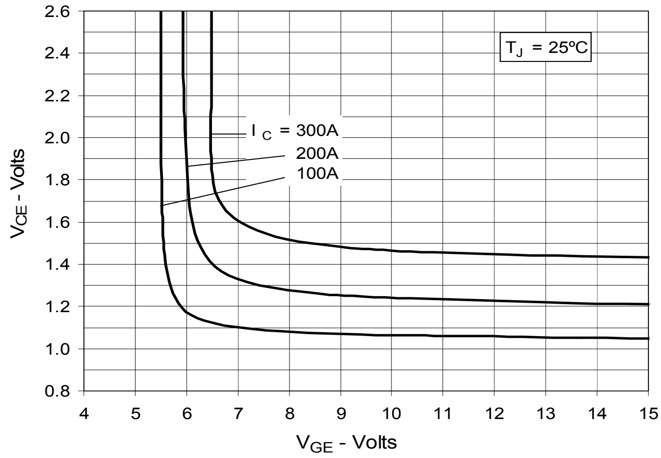


Fig. 5. Input Admittance

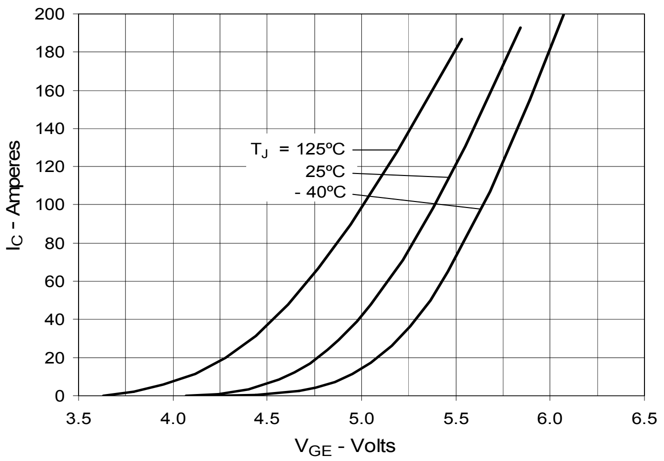


Fig. 6. Transconductance

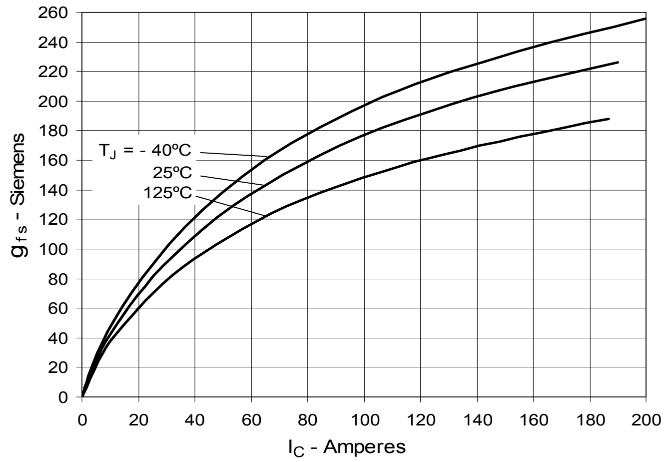


Fig. 7. Gate Charge

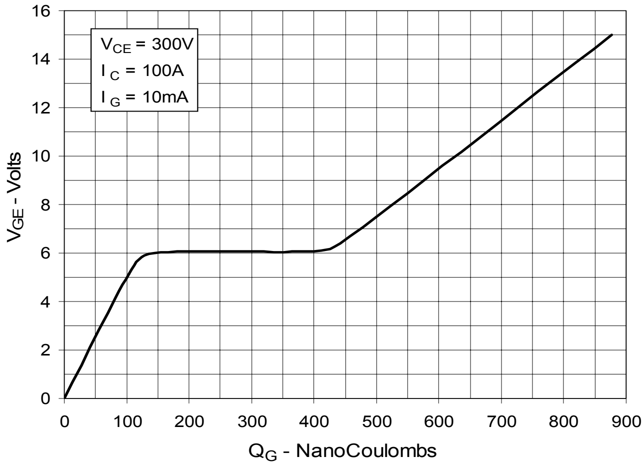


Fig. 8. Reverse-Bias Safe Operating Area

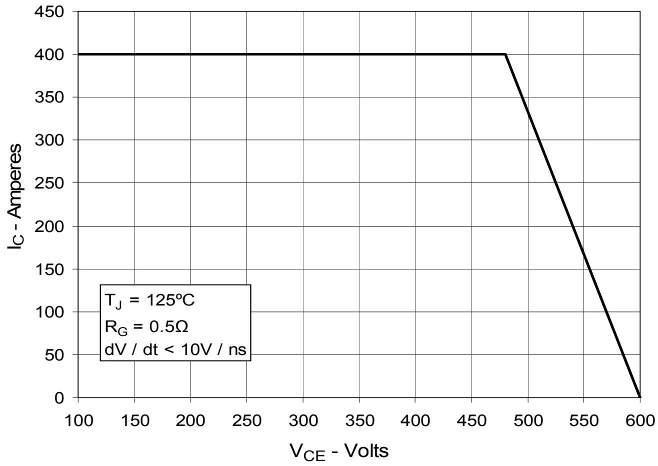


Fig. 9. Capacitance

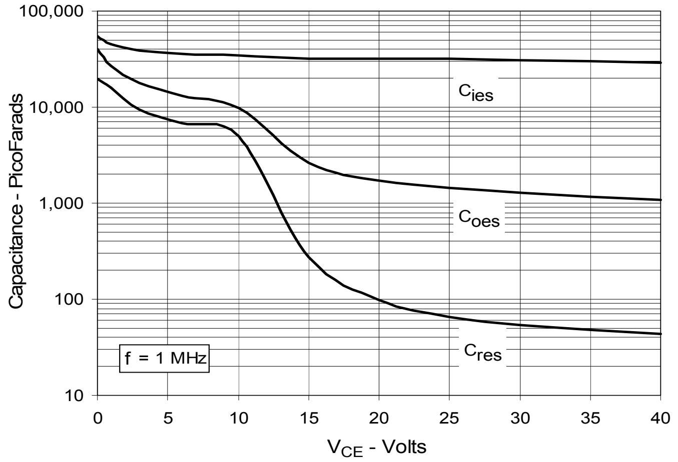


Fig. 10. Maximum Transient Thermal Impedance

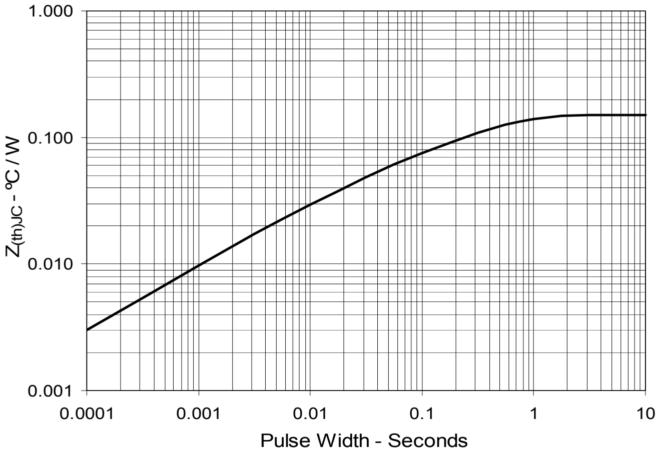


Fig. 11. Resistive Turn-on Rise Time vs. Junction Temperature

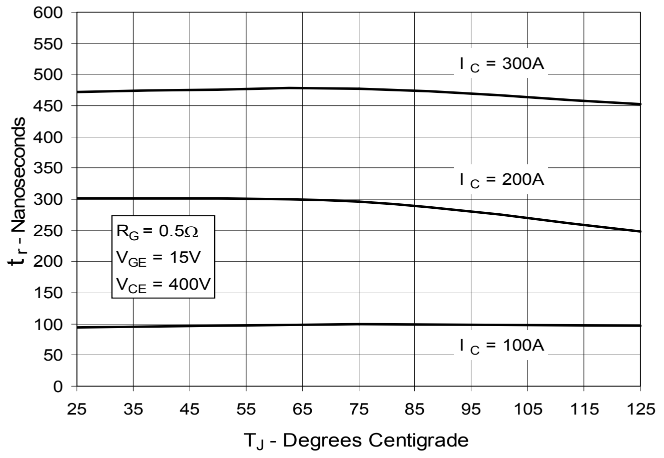


Fig. 12. Resistive Turn-on Rise Time vs. Collector Current

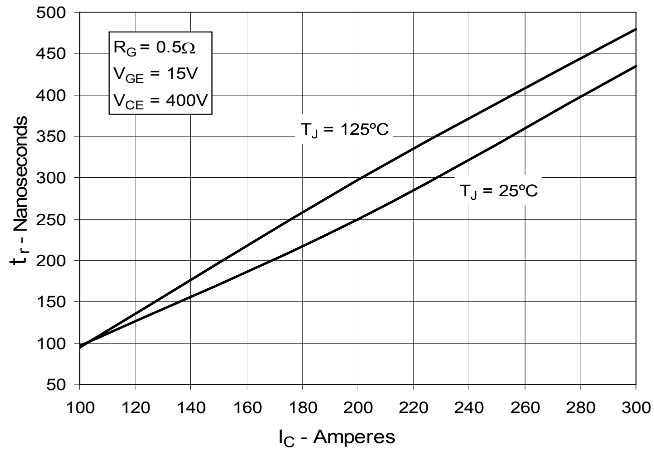


Fig. 13. Resistive Turn-on Switching Times vs. Gate Resistance

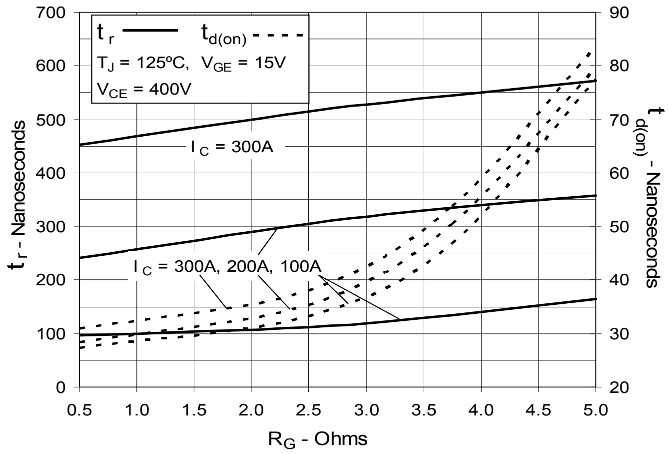


Fig. 14. Resistive Turn-off Switching Times vs. Junction Temperature

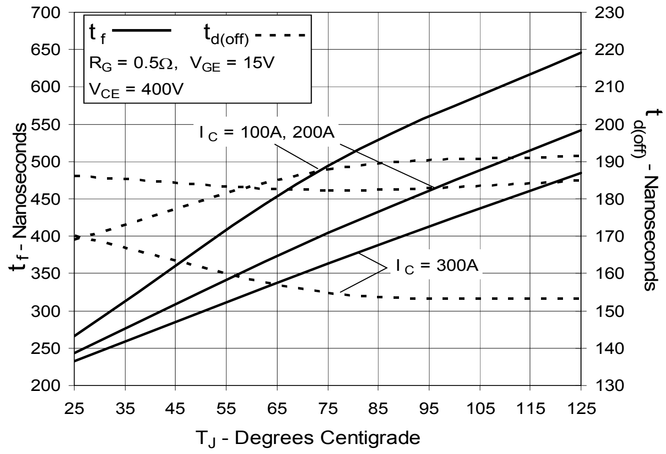


Fig. 15. Resistive Turn-off Switching Times vs. Collector Current

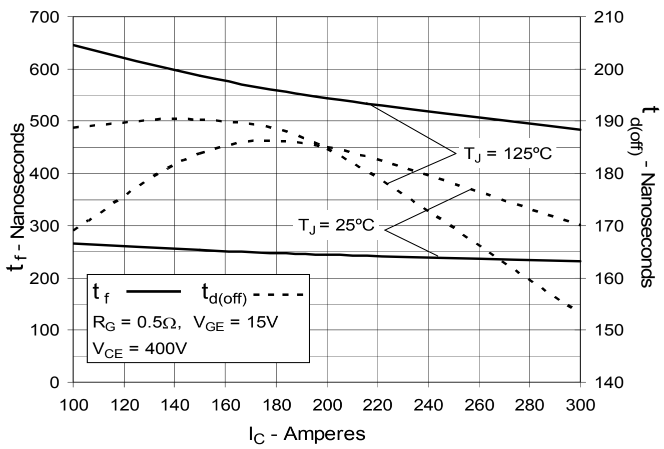


Fig. 16. Resistive Turn-off Switching Times vs. Gate Resistance