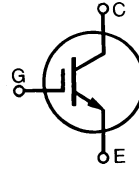


Low $V_{CE(sat)}$
High speed IGBT

IXGH/IXGM 25 N100
IXGH/IXGM 25 N100A

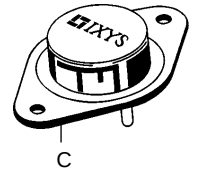
V_{CES}	I_{C25}	$V_{CE(sat)}$
1000 V	50 A	3.5 V
1000 V	50 A	4.0 V



Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C}$ to 150°C	1000	V
V_{CGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GE} = 1\text{ M}\Omega$	1000	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$	50	A
I_{C90}	$T_C = 90^\circ\text{C}$	25	A
I_{CM}	$T_C = 25^\circ\text{C}$, 1 ms	100	A
SSOA (RBSOA)	$V_{GE} = 15\text{ V}$, $T_{VJ} = 125^\circ\text{C}$, $R_G = 33\ \Omega$ Clamped inductive load, $L = 100\ \mu\text{H}$	$I_{CM} = 50$ @ $0.8\ V_{CES}$	A
P_C	$T_C = 25^\circ\text{C}$	200	W
T_J		$-55 \dots +150$	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		$-55 \dots +150$	$^\circ\text{C}$
M_d	Mounting torque (M3)	1.13/10	Nm/lb.in.
Weight		TO-204 = 18 g, TO-247 = 6 g	
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	$^\circ\text{C}$

TO-247 AD (IXGH)

TO-204 AE (IXGM)



G = Gate,
E = Emitter,

C = Collector,
TAB = Collector

Features

- International standard packages
- 2nd generation HDMOS™ process
- Low $V_{CE(sat)}$
 - for low on-state conduction losses
- High current handling capability
- MOS Gate turn-on
 - drive simplicity
- Voltage rating guaranteed at high temperature (125°C)

Applications

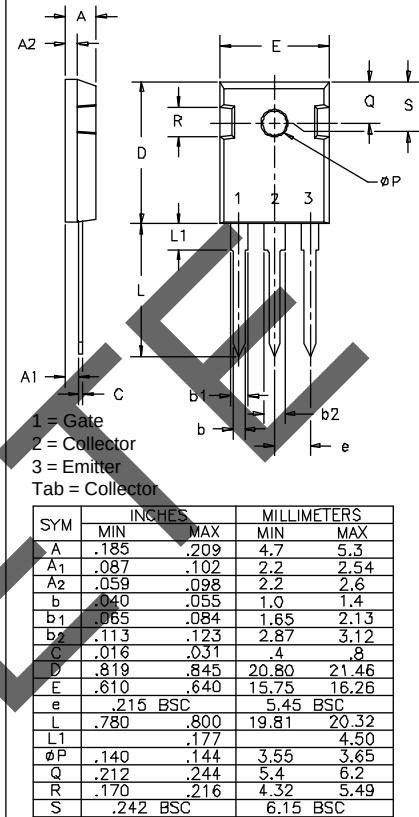
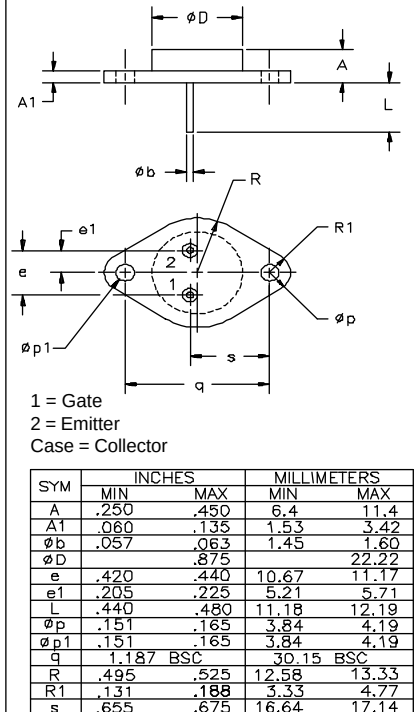
- AC motor speed control
- DC servo and robot drives
- DC choppers
- Uninterruptible power supplies (UPS)
- Switch-mode and resonant-mode power supplies

Advantages

- Easy to mount with 1 screw (TO-247) (isolated mounting screw hole)
- High power density

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
BV_{CES}	$I_C = 3\text{ mA}$, $V_{GE} = 0\text{ V}$	1000		V
$V_{GE(th)}$	$I_C = 250\ \mu\text{A}$, $V_{CE} = V_{GE}$	2.5		V
I_{CES}	$V_{CE} = 0.8 \cdot V_{CES}$ $V_{GE} = 0\text{ V}$			$250\ \mu\text{A}$ 1 mA
I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = \pm 20\text{ V}$			$\pm 100\text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}$, $V_{GE} = 15\text{ V}$			3.5 V 4.0 V

Symbol	Test Conditions	Characteristic Values (T _j = 25°C, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	I _C = I _{C90} ; V _{CE} = 10 V, Pulse test, t ≤ 300 μs, duty cycle ≤ 2 %	8	15	S
C_{ies}	V _{CE} = 25 V, V _{GE} = 0 V, f = 1 MHz		2750	pF
C_{oes}			200	pF
C_{res}			50	pF
Q_g	I _C = I _{C90} , V _{GE} = 15 V, V _{CE} = 0.5 V _{CES}		130	nC
Q_{ge}			25	nC
Q_{gc}			55	nC
t_{d(on)}	Inductive load, T_j = 25°C I _C = I _{C90} , V _{GE} = 15 V, L = 300 μH, V _{CE} = 0.8 V _{CES} , R _G = R _{off} = 33 Ω Remarks: Switching times may increase for V _{CE} (Clamp) > 0.8 • V _{CES} , higher T _j or increased R _G		100	ns
t_{ri}			200	ns
t_{d(off)}			500	ns
t_{fi}			500	ns
E_{off}			5	mJ
t_{d(on)}	Inductive load, T_j = 125°C I _C = I _{C90} , V _{GE} = 15 V, L = 300 μH, V _{CE} = 0.8 V _{CES} , R _G = R _{off} = 33 Ω Remarks: Switching times may increase for V _{CE} (Clamp) > 0.8 • V _{CES} , higher T _j or increased R _G		100	ns
t_{ri}			250	ns
E_{on}			3.5	mJ
t_{d(off)}			720	ns
t_{fi}			950	ns
E_{off}			10	mJ
R_{thJC}			0.25	0.62 K/W
R_{thCK}				K/W

TO-247 AD Outline

TO-204AE Outline


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 4,881,106 5,017,508 5,049,961 5,187,117 5,486,715
4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025

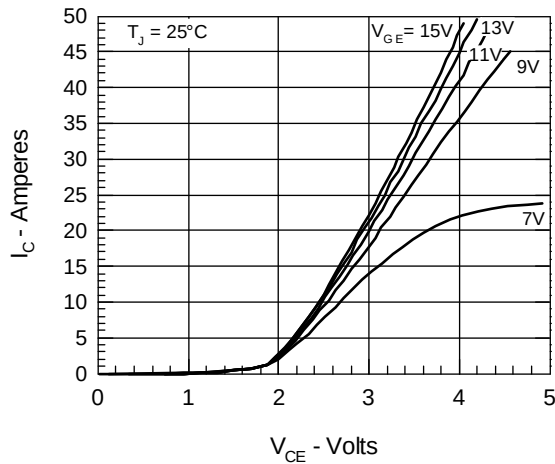
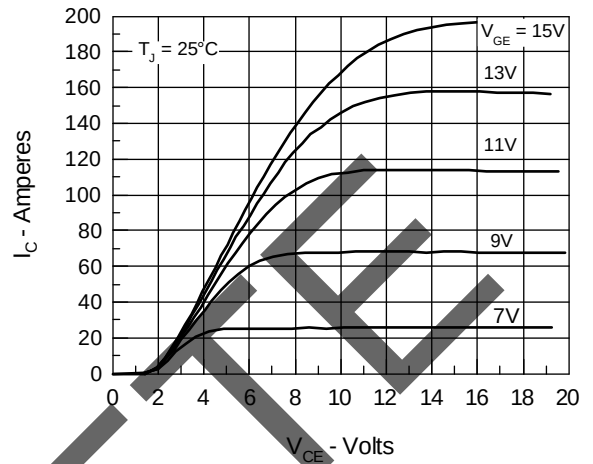
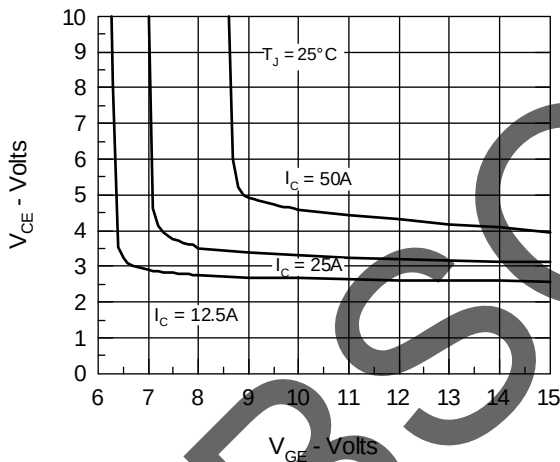
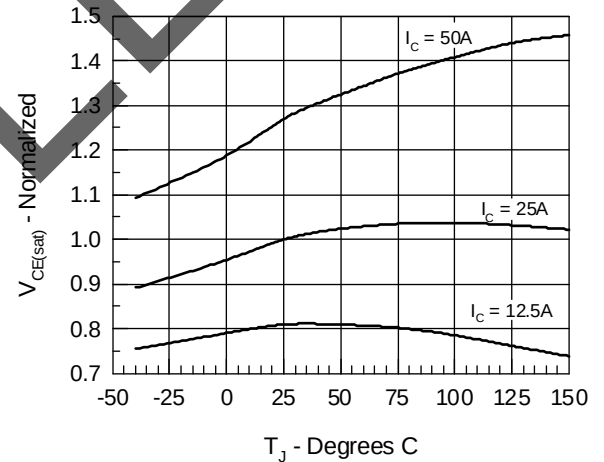
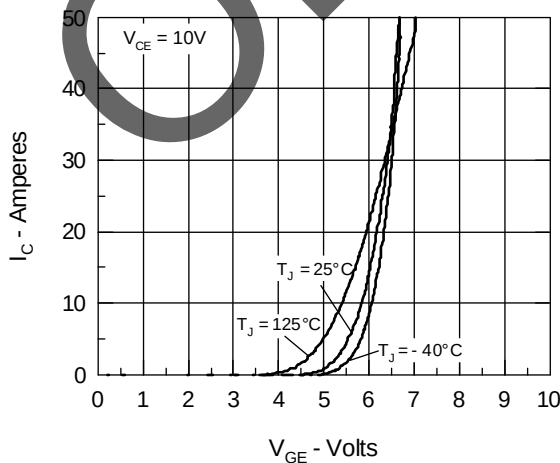
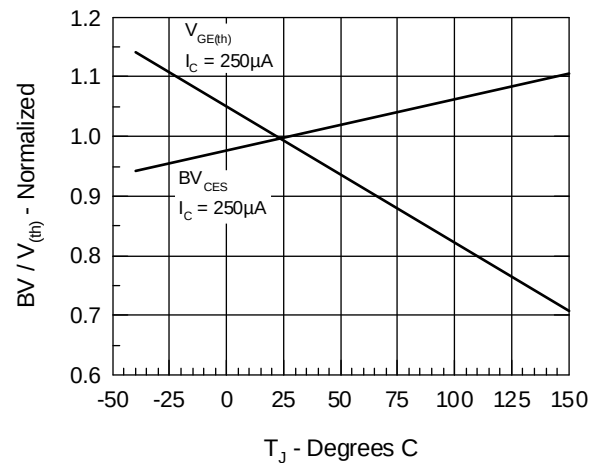
Fig. 1 Saturation Characteristics

Fig. 2 Output Characteristics

Fig. 3 Collector-Emitter Voltage vs. Gate-Emitter Voltage

Fig. 4 Temperature Dependence of Output Saturation Voltage

Fig. 5 Input Admittance

Fig. 6 Temperature Dependence of Breakdown and Threshold Voltage


Fig.7 Gate Charge

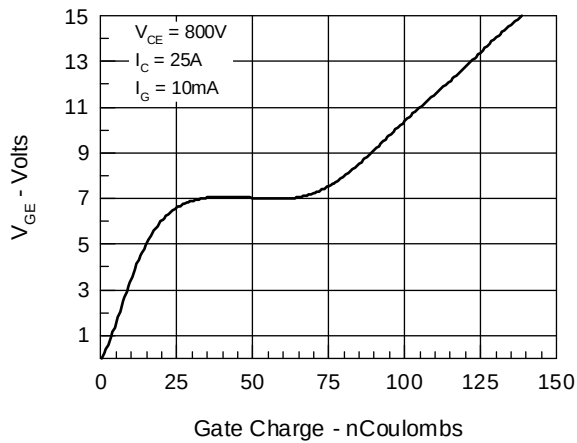


Fig.8 Turn-Off Safe Operating Area

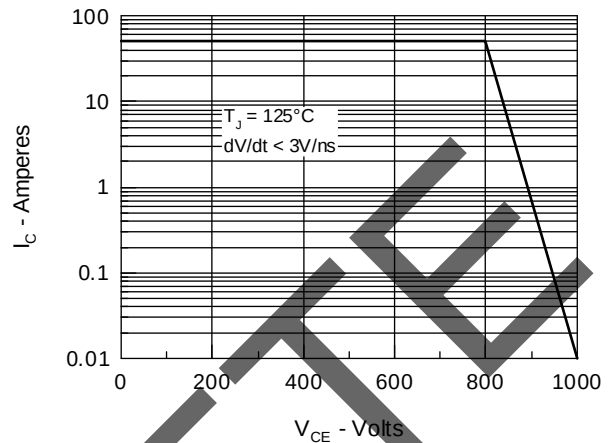


Fig.9 Capacitance Curves

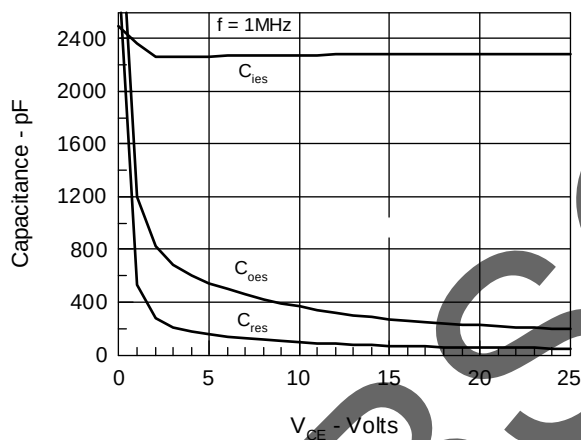
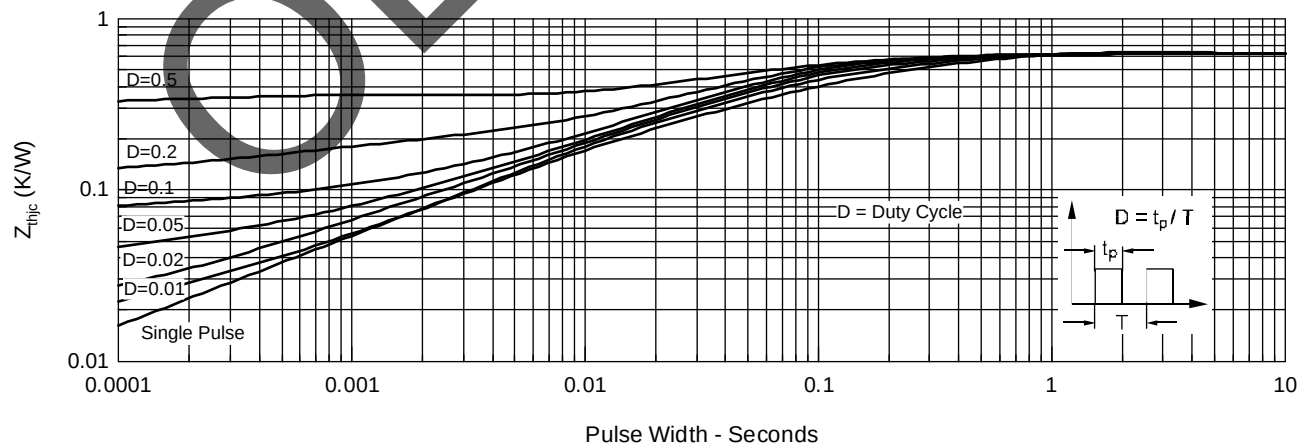


Fig.10 Transient Thermal Impedance





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