

X2-Class **Power MOSFET**

IXTY2N65X2 IXTP2N65X2

N-Channel Enhancement Mode



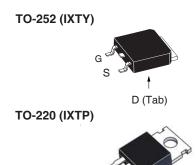
0.35

650V



Symbol	Test Conditions	Maximum Ratings		
V _{DSS}	$T_J = 25^{\circ}C \text{ to } 150^{\circ}C$	650	V	
V _{DGR}	$T_{_{ m J}}$ = 25°C to 150°C, $R_{_{ m GS}}$ = 1M Ω	650	V	
V _{GSS}	Continuous	±30	V	
V _{GSM}	Transient	±40	V	
I _{D25}	T _C = 25°C	2	A	
I _{DM}	$T_{\rm C} = 25^{\circ}$ C, Pulse Width Limited by $T_{\rm JM}$	4	Α	
I _A	T _C = 25°C	1	А	
E _{as}	$T_{c} = 25^{\circ}C$	100	mJ	
dv/dt	$I_{_{\mathrm{S}}} \leq I_{_{\mathrm{DM}}}, V_{_{\mathrm{DD}}} \leq V_{_{\mathrm{DSS}}}, T_{_{\mathrm{J}}} \leq 150^{\circ}\mathrm{C}$	15	V/ns	
$\overline{P_{D}}$	T _C = 25°C	55	W	
T _J		-55 +150	°C	
T_{JM}		150	°C	
T _{stg}		-55 +150	°C	
T _L	Maximum Lead Temperature for Soldering	300	°C	
T _{SOLD}	1.6 mm (0.062in.) from Case for 10s	260	°C	
M_d	Mounting Torque (TO-220)	1.13 / 10	Nm/lb.in	

TO-220	3.00	g
Symbol Test Conditions (T _J = 25°C, Unless Otherwise Specified)	Characterist Min. Typ.	
$V_{GS} = 0V, I_D = 250\mu A$	650	V
$V_{GS(th)}$ $V_{DS} = V_{GS}$, $I_D = 250 \mu A$	3.0	5.0 V
$V_{GS} = \pm 30V, V_{DS} = 0V$		±100 nA
I_{DSS} $V_{DS} = V_{DSS}, V_{GS} = 0V$ T_{J}	= 125°C	5 μA 100 μA





Features

- International Standard Packages

g

 2.3Ω

- Low Q_GAvalanche Rated
- Low Package Inductance

Advantages

- High Power Density
- Easy to Mount
- Space Savings

Applications

- Switch-Mode and Resonant-Mode **Power Supplies**
- DC-DC Converters
- PFC Circuits
- AC and DC Motor Drives
- · Robotics and Servo Controls

 $V_{GS} = 10V, I_{D} = 0.5 \bullet I_{D25}, Note 1$

Weight

TO-252

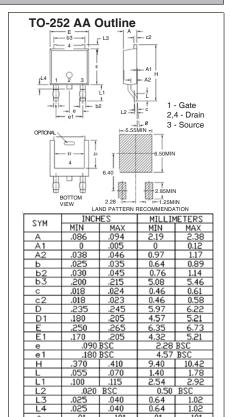


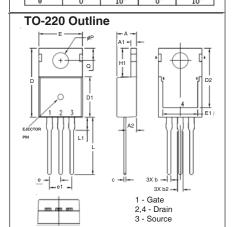
Symbol Test Conditions Cha		Char	racteristic Values		
$(T_J = 25^{\circ}C, L)$	Inless Otherwise Specified)	Min.	Тур.	Max	
g _{fs}	$V_{DS} = 10V, I_{D} = 0.5 \bullet I_{D25}, Note 1$	1.1	1.8	S	
R _{Gi}	Gate Input Resistance		14	Ω	
C _{iss}			180	pF	
C _{oss}	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$		129	pF	
C _{rss}			0.7	pF	
	Effective Output Capacitance				
$\mathbf{C}_{o(er)}$	Energy related \ V _{GS} = 0V		22	pF	
C _{o(tr)}	Time related $\int_{0.8}^{0.8} V_{DS} = 0.8 \cdot V_{DSS}$		45	pF	
t _{d(on)}	Resistive Switching Times		15	ns	
t _r	$V_{GS} = 10V, V_{DS} = 0.5 \cdot V_{DSS}, I_{D} = 0.5 \cdot I_{D25}$		19	ns	
t _{d(off)}	$R_{\rm G} = 50\Omega$ (External)		20	ns	
t,	n _G = 5052 (External)		14	ns	
Q _{g(on)}			4.3	nC	
Q _{gs}	$V_{GS} = 10V, V_{DS} = 0.5 \cdot V_{DSS}, I_{D} = 0.5 \cdot I_{D25}$		8.0	nC	
Q _{gd}			2.1	nC	
R _{thJC}				2.27 °C/W	
R _{thCS}	TO-220		0.50	°C/W	

Source-Drain Diode

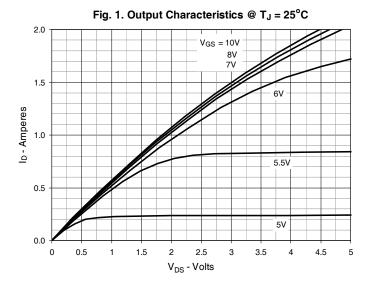
Symbol Test Conditions (T _J = 25°C, Unless Otherwise Specified)		Characteristic Values Min. Typ. Max			
I _s	$V_{GS} = 0V$			2	Α
I _{SM}	Repetitive, pulse Width Limited by $\mathrm{T}_{_{\mathrm{JM}}}$			8	Α
V _{SD}	$I_F = I_S$, $V_{GS} = 0V$, Note 1			1.4	V
$\left\{ egin{array}{ll} \mathbf{t}_{rr} & \\ \mathbf{Q}_{RM} & \\ \mathbf{I}_{RM} & \end{array} ight\}$	$I_F = 1A$, -di/dt = 100A/µs $V_R = 100V$		137 508 7.4		ns nC A

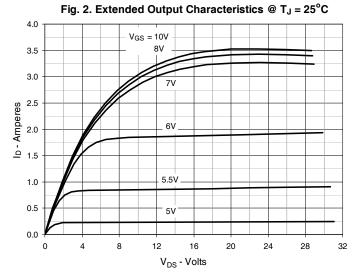
Note 1. Pulse test, $t \le 300 \mu s$, duty cycle, $d \le 2\%$.

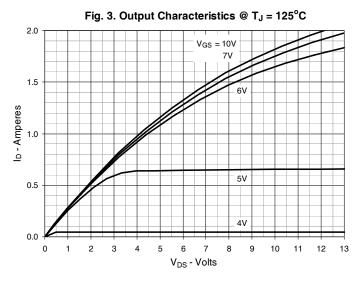


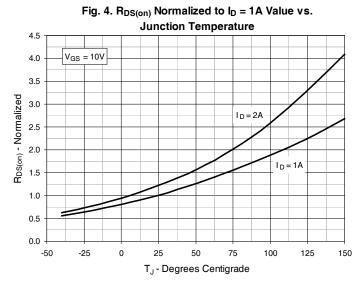


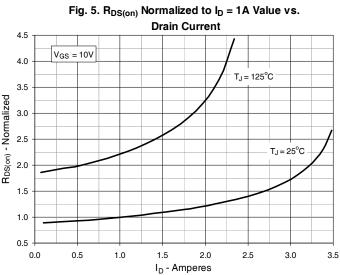
SYM	INCHES		MILLIMETERS		
21M	MIN	MAX	MIN	MAX	
Α	.169	.185	4.30	4.70	
A1	.047	.055	1.20	1.40	
A2	.079	.106	2.00	2.70	
Ь	.024	.039	0.60	1.00	
ь2	.045	.057	1.15	1.45	
С	.014	.026	0.35	0.65	
D	.587	.626	14.90	15.90	
D1	.335	.370	8.50	9.40	
(D2)	.500	.531	12.70	13.50	
E	.382	.406	9.70	10.30	
(E1)	.283	.323	7.20	8.20	
е	.100) BSC	2.54 BSC		
e1	.200) BSC	ISC 5.08 BSC		
H1	.244	.268	6.20	6.80	
L	.492	.547	12.50	13.90	
L1	.110	.154	2.80	3.90	
ØΡ	.134	.150	3.40	3.80	
Q	.106	.126	2.70	3.20	

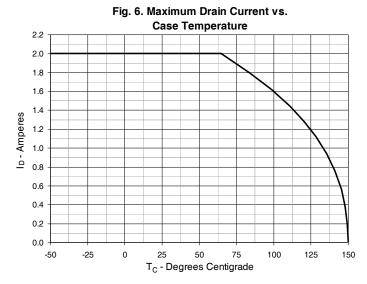




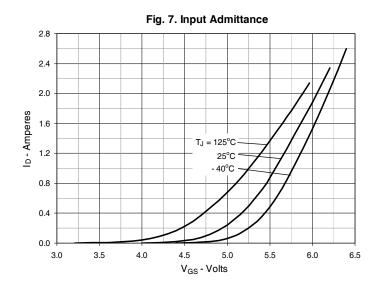


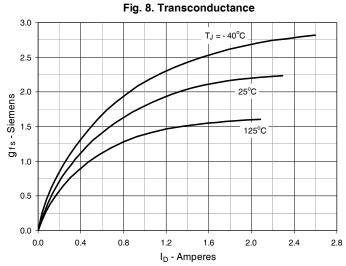


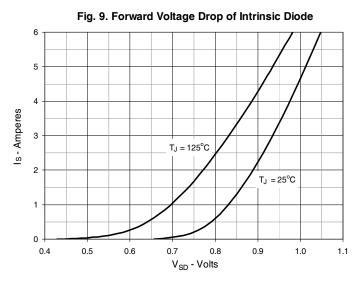


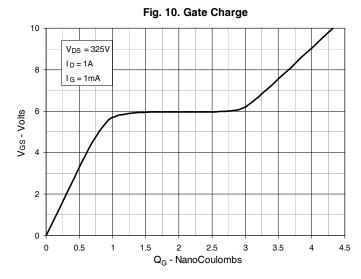


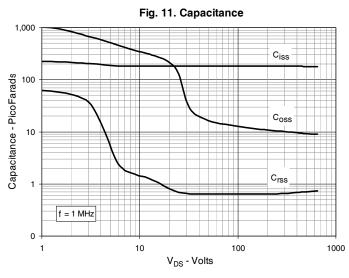


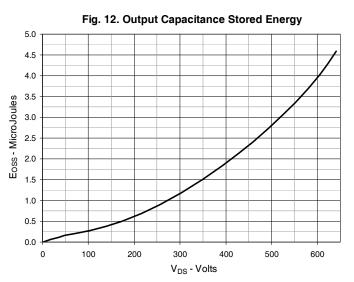












IXYS Reserves the Right to Change Limits, Test Conditions, and Dimensions.

Fig. 13. Forward-Bias Safe Operating Area

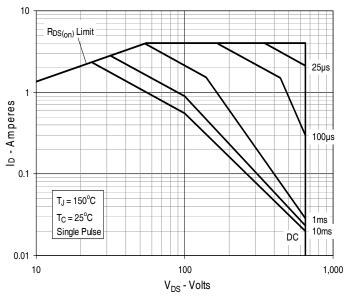


Fig. 14. Maximum Transient Thermal Impedance

