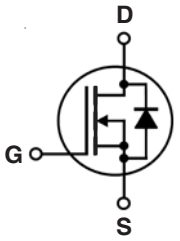
IXYS

High Voltage Power MOSFET

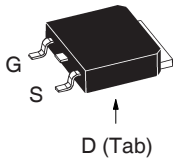
IXTY02N50D
IXTU02N50D
IXTP02N50D

V_{DSX} = 500V
I_{D25} = 200mA
$R_{DS(on)}$ ≤ 30Ω

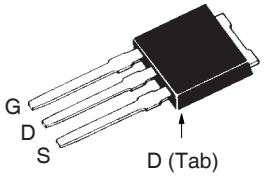
N-Channel



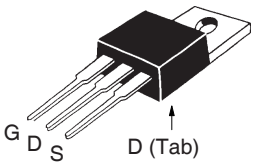
TO-252 (IXTY)



TO-251 (IXTU)



TO-220AB (IXTP)



G = Gate D = Drain
S = Source Tab = Drain

Symbol	Test Conditions	Maximum Ratings	
V_{DSX}	T_J = 25°C to 150°C	500	V
V_{DGX}	T_J = 25°C to 150°C	500	V
V_{GSX}	Continuous	±20	V
V_{GSM}	Transient	±30	V
I_{D25}	T_C = 25°C	200	mA
I_{DM}	T_C = 25°C, Pulse Width Limited by T_J	800	mA
P_D	T_C = 25°C	25	W
	T_A = 25°C	1.1	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.
Weight	TO-252	0.35	g
	TO-251	0.40	g
	TO-220	3.00	g

Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
BV_{DSX}	V_{GS} = -10V, I_D = 25μA	500			V
$V_{GS(off)}$	V_{DS} = 25V, I_D = 25μA	- 2.5		- 5.0	V
I_{GSX}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
$I_{DSX(off)}$	V_{DS} = V_{DSX}, V_{GS} = -10V			10	μA
	T_J = 125°C			250	μA
$R_{DS(on)}$	V_{GS} = 0V, I_D = 50mA, Note 1		20	30	Ω
$I_{D(on)}$	V_{GS} = 0V, V_{DS} = 25V, Note 1		250		mA

Features

- Normally ON Mode
- International Standard Packages
- Low $R_{DS(on)}$ HDMOS™ Process
- Rugged Polysilicon Gate Cell Structure
- Fast Switching Speed

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

- Level Shifting
- Triggers
- Solid State Relays
- Current Regulators

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Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
g_{fs}	V_{DS} = 50V, I_D = 200mA, Note 1	100	150		mS
C_{iss}	V_{GS} = -10V, V_{DS} = 25V, f = 1MHz		120		pF
C_{oss}			25		pF
C_{rss}			5		pF
$t_{d(on)}$	**Resistive Switching Times**		9		ns
t_r	V_{GS} = ±5V, V_{DS} = 100V, I_D = 50mA		4		ns
$t_{d(off)}$	R_G = 30Ω (External)		28		ns
t_f			45		ns
R_{thJC}				5.0	°C/W
R_{thCS}	TO-220		0.50		°C/W

Source-Drain Diode

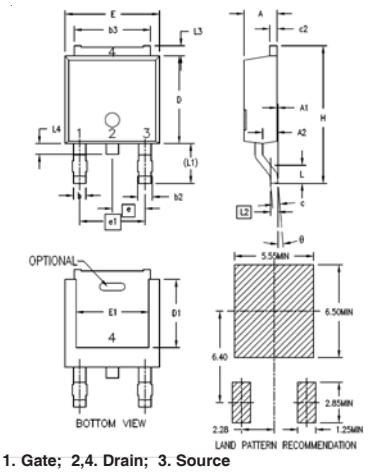
Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
V_{SD}	I_F = 200mA, V_{GS} = -10V, Note 1		0.7	1.5	V
t_{rr}	I_F = 750mA, -di/dt = 100A/μs V_R = 25V, V_{GS} = -10V			1.0	μs

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

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 4,860,072 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

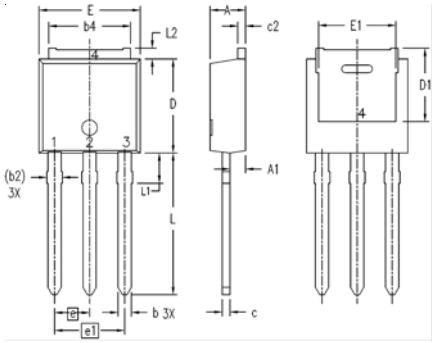
TO-252 AA (IXTY) Outline



1. Gate; 2,4. Drain; 3. Source

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.086	.094	2.19	2.38
A1	0	.005	0	0.12
A2	.038	.046	0.97	1.17
b	.025	.035	0.64	0.89
b2	.030	.045	0.76	1.14
b3	.200	.215	5.08	5.46
c	.018	.024	0.46	0.61
c2	.018	.023	0.46	0.58
D	.235	.245	5.97	6.22
D1	.180	.205	4.57	5.21
E	.250	.265	6.35	6.73
E1	.170	.205	4.32	5.21
e	.090 BSC		2.28 BSC	
e1	.180 BSC		4.57 BSC	
H	.370	.410	9.40	10.42
L	.055	.070	1.40	1.78
L1	.100	.115	2.54	2.92
L2	.020 BSC		0.50 BSC	
L3	.025	.040	0.64	1.02
L4	.025	.040	0.64	1.02
θ	0°	10°	0°	10°

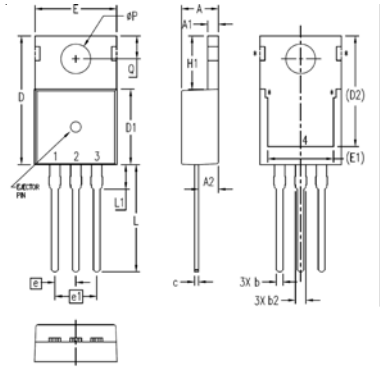
TO-251 AA (IXTU) Outline



1. Gate; 2,4. Drain; 3. Source

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.087	.094	2.20	2.40
A1	.032	.048	0.82	1.22
b	.026	.034	0.66	0.86
(b2)	.030	.038	0.76	0.96
b4	.198	.222	5.04	5.64
c	.018	.024	0.45	0.60
c2	.016	.024	0.40	0.60
D	.232	.248	5.90	6.30
(D1)	.179	.195	4.55	4.95
E	.252	.268	6.40	6.80
(E1)	.191	.207	4.85	5.25
e	.090 BSC		2.28 BSC	
e1	.180 BSC		4.57 BSC	
L	.358	.374	9.10	9.50
L1	.063	.079	1.60	2.00
L2	.020	.035	0.50	0.90

TO-220 (IXTP) Outline



1. Gate; 2,4. Drain; 3. Source

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.169	.185	4.30	4.70
A1	.047	.055	1.20	1.40
A2	.079	.106	2.00	2.70
b	.024	.039	0.60	1.00
b2	.045	.057	1.15	1.45
c	.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
e	.100 BSC		2.54 BSC	
e1	.200 BSC		5.08 BSC	
H1	.244	.268	6.20	6.80
L	.492	.547	12.50	13.90
L1	.110	.154	2.80	3.90
ØP	.134	.150	3.40	3.80
Q	.106	.126	2.70	3.20

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