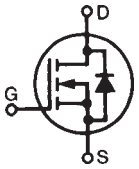
IXYS

Polar™ Power MOSFET

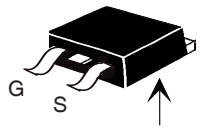
IXTA06N120P
IXTP06N120P

V_{DSS} = 1200V
I_{D25} = 0.6A
$R_{DS(on)}$ ≤ 34Ω

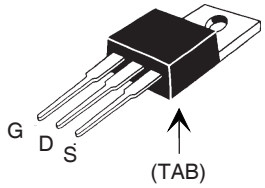
N-Channel Enhancement Mode
Avalanche Rated



TO-263 (IXTA)



TO-220 (IXTP)



G = Gate D = Drain
S = Source TAB = Drain

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C	1200	V
V_{DGR}	T_J = 25°C to 150°C, R_{GS} = 1MΩ	1200	V
V_{GSS}	Continuous	±20	V
V_{GSM}	Transient	±30	V
I_{D25}	T_C = 25°C	0.6	A
I_{DM}	T_C = 25°C, Pulse Width Limited by T_{JM}	1.2	A
I_A	T_C = 25°C	0.6	A
E_{AS}	T_C = 25°C	50	mJ
dV/dt	$I_S \le I_{DM}$, $V_{DD} \le V_{DSS}$, $T_J \le 150°C$	10	V/ns
P_D	T_C = 25°C	42	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
T_L	1.6mm (0.062) from Case for 10s	300	°C
T_{SOLD}	Plastic Body for 10s	260	°C
M_d	Mounting Torque (TO-220)	1.13 / 10	Nm/lb.in.
Weight	TO-263	2.5	g
	TO-220	3.0	g

Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
BV_{DSS}	V_{GS} = 0V, I_D = 250μA	1200			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = 50μA	2.0		4.0	V
I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±50	nA
I_{DSS}	$V_{DS} = V_{DSS}$, V_{GS}= 0V			3	μA
	T_J = 125°C			125	μA
$R_{DS(on)}$	V_{GS} = 10V, $I_D = 0.5 \bullet I_{D25}$, Note 1		27	34	Ω

Features

- International Standard Packages
- Avalanche Rated
- Low Package Inductance

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

- High Voltage Switched-Mode and Resonant-Mode Power Supplies
- High Voltage Pulse Power Applications
- High Voltage Discharge Circuits in Lasers Pulsers, Spark Igniters, RF Generators
- High Voltage DC-DC Converters
- High Voltage DC-AC Inverters

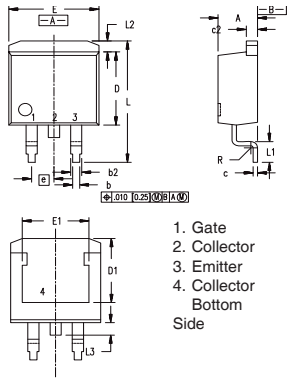
Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.
g_{fs}	V_{DS}= 30V, I_D = 0.5 • I_{D25}, Note 1	0.28	0.45	S
C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		236	pF
C_{oss}			15	pF
C_{rss}			3.2	pF
$t_{d(on)}$	**Resistive Switching Times**		19	ns
t_r	V_{GS} = 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25},		37	ns
$t_{d(off)}$			35	ns
t_f	R_G = 50Ω (External)		34	ns
$Q_{g(on)}$	V_{GS}= 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25}		13.3	nC
Q_{gs}			2.4	nC
Q_{gd}			7.8	nC
R_{thJC}				3.0 °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.
I_S	V_{GS} = 0V			0.6 A
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}			1.8 A
V_{SD}	I_F = I_S, V_{GS} = 0V, Note 1			1.5 V
t_{rr}	I_F = 0.6A, -di/dt = 100A/μs V_R = 100V, V_{GS} = 0V		900	ns

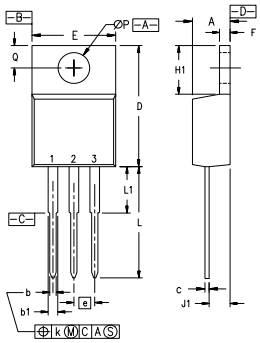
Note 1. Pulse test, t ≤ 300 μs; duty cycle, d ≤ 2%.

TO-263 (IXTA) Outline



Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	4.06	4.83	.160	.190
b	0.51	0.99	.020	.039
b2	1.14	1.40	.045	.055
c	0.40	0.74	.016	.029
c2	1.14	1.40	.045	.055
D	8.64	9.65	.340	.380
D1	8.00	8.89	.280	.320
E	9.65	10.41	.380	.405
E1	6.22	8.13	.270	.320
e	2.54	BSC	.100	BSC
L	14.61	15.88	.575	.625
L1	2.29	2.79	.090	.110
L2	1.02	1.40	.040	.055
L3	1.27	1.78	.050	.070
L4	0	0.13	0	.005

TO-220 (IXTP) Outline



Pins: 1 - Gate 2 - Drain

SYM	INCHES MIN	MAX	MILLIMETERS MIN	MAX
A	.170	.190	4.32	4.83
b	.025	.040	0.64	1.02
b1	.045	.065	1.15	1.65
c	.014	.022	0.35	0.56
D	.580	.630	14.73	16.00
E	.390	.420	9.91	10.66
e	.100 BSC		2.54 BSC	
F	.045	.055	1.14	1.40
H1	.230	.270	5.85	6.85
J1	.090	.110	2.29	2.79
k	0	.015	0	0.38
L	.500	.550	12.70	13.97
L1	.110	.230	2.79	5.84
ØP	.139	.161	3.53	4.08
Q	.100	.125	2.54	3.18

Fig. 1. Output Characteristics @ 25ºC

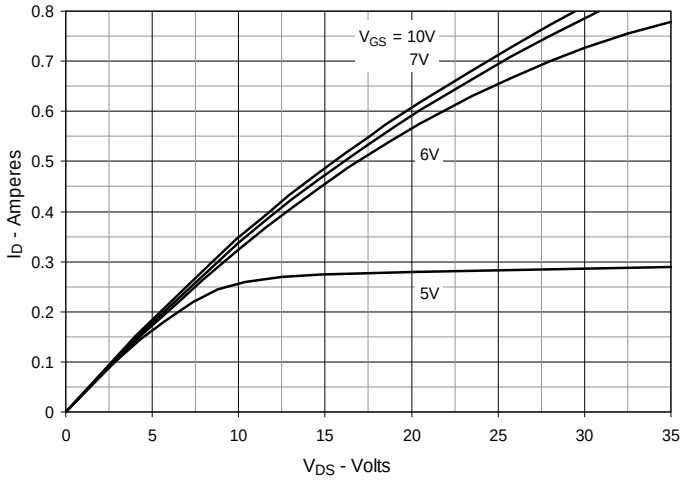


Fig. 2. Output Characteristics @ 125ºC

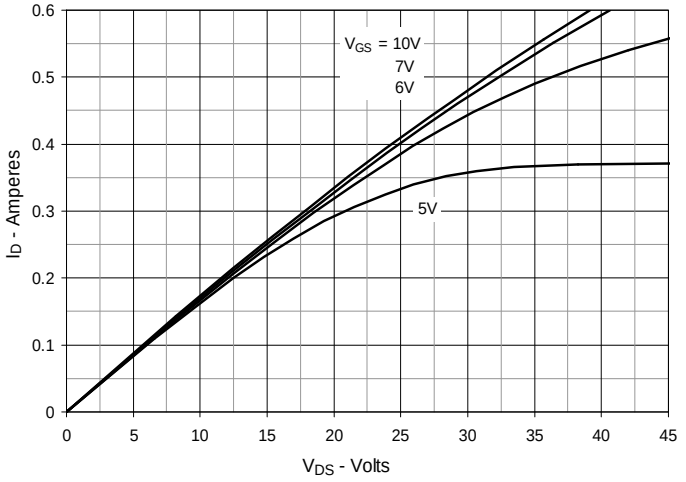


Fig. 3. $R_{DS(on)}$ Normalized to I_D = 0.3A Value vs. Junction Temperature

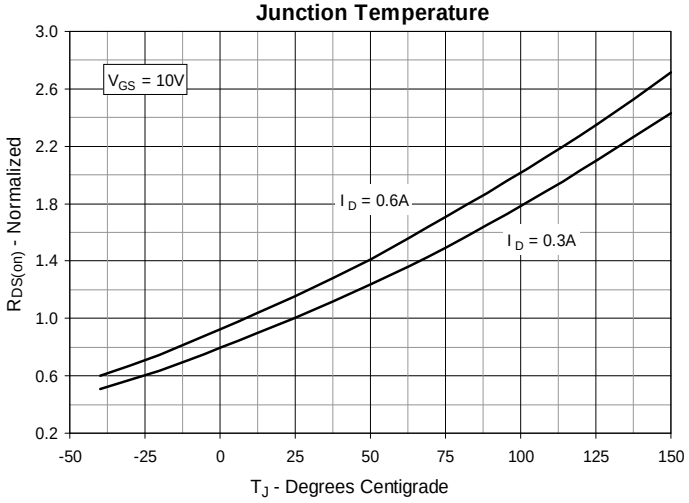


Fig. 4. $R_{DS(on)}$ Normalized to I_D = 0.3A Value vs. Drain Current

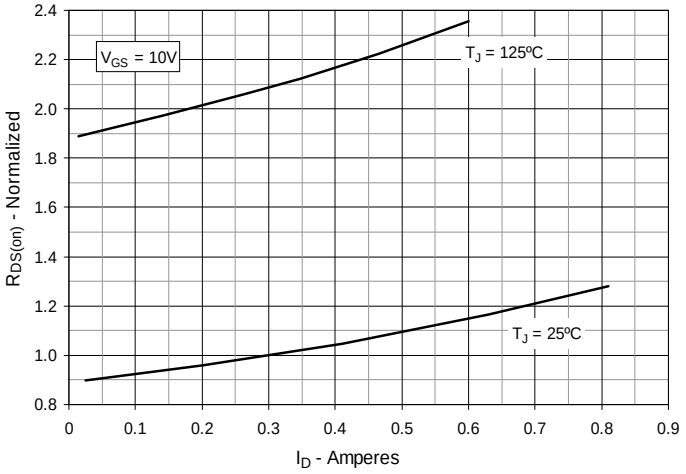


Fig. 5. Maximum Drain Current vs. Case Temperature

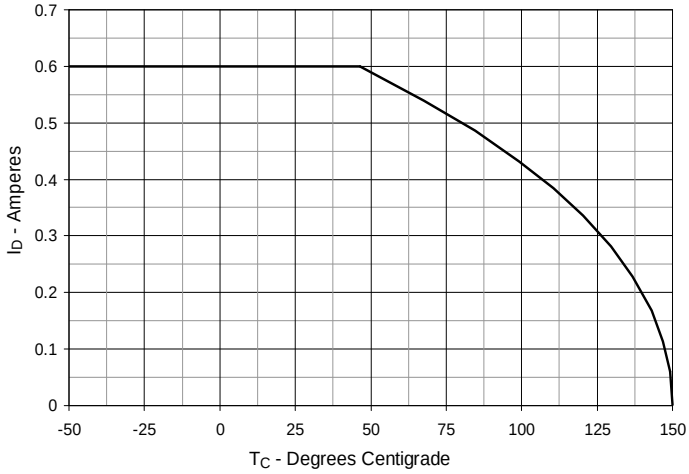


Fig. 6. Input Admittance

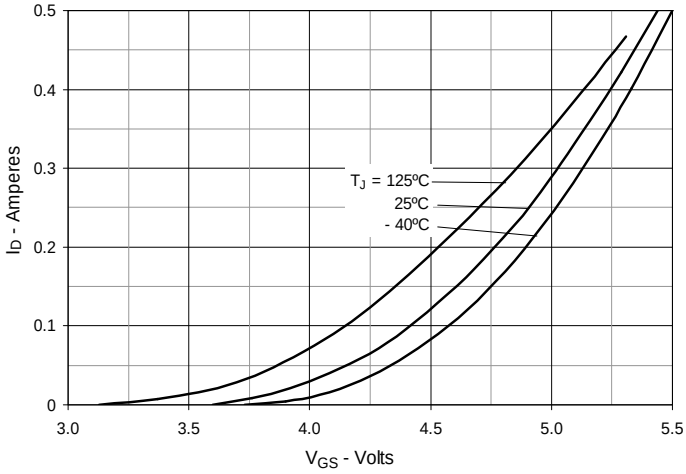


Fig. 7. Transconductance

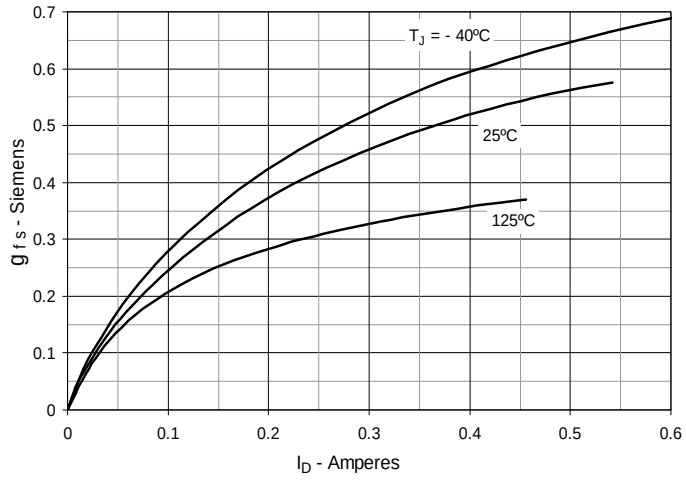


Fig. 8. Forward Voltage Drop of Intrinsic Diode

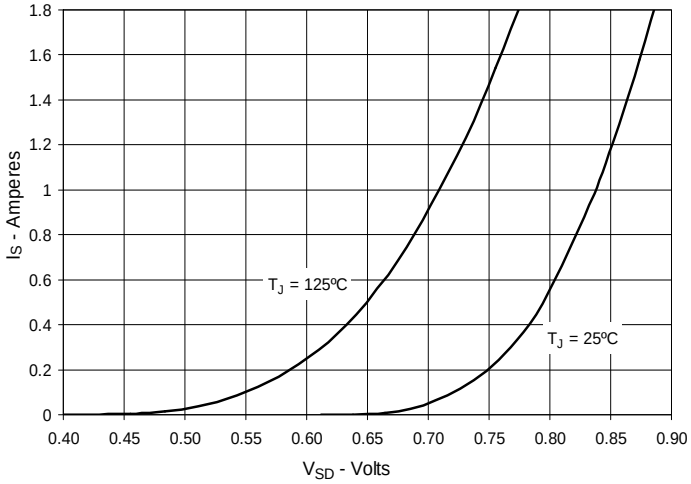


Fig. 9. Gate Charge

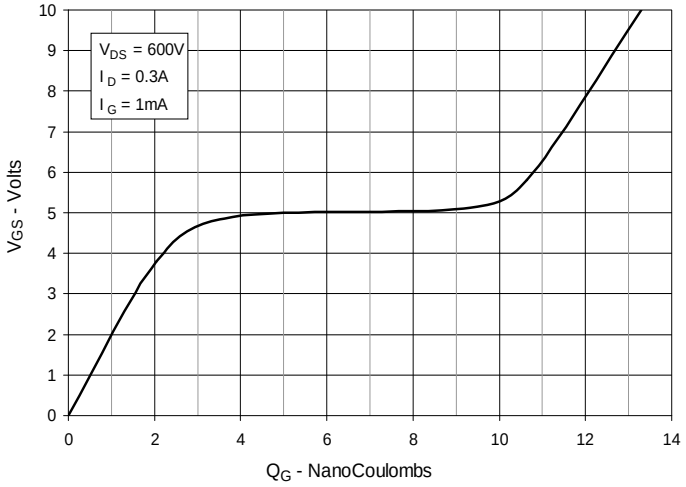


Fig. 10. Capacitance

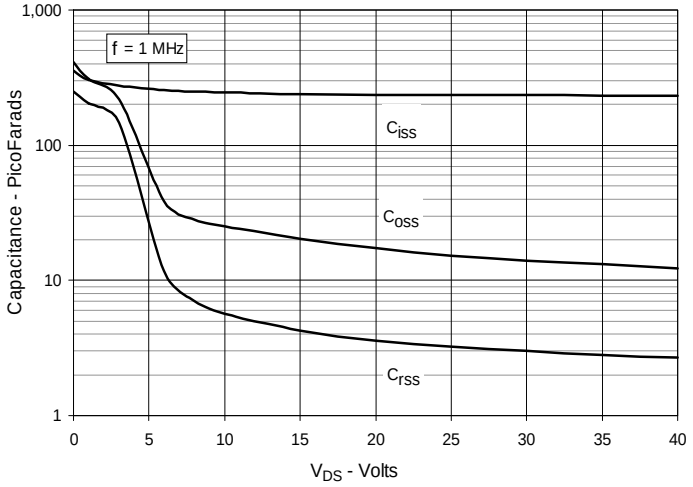
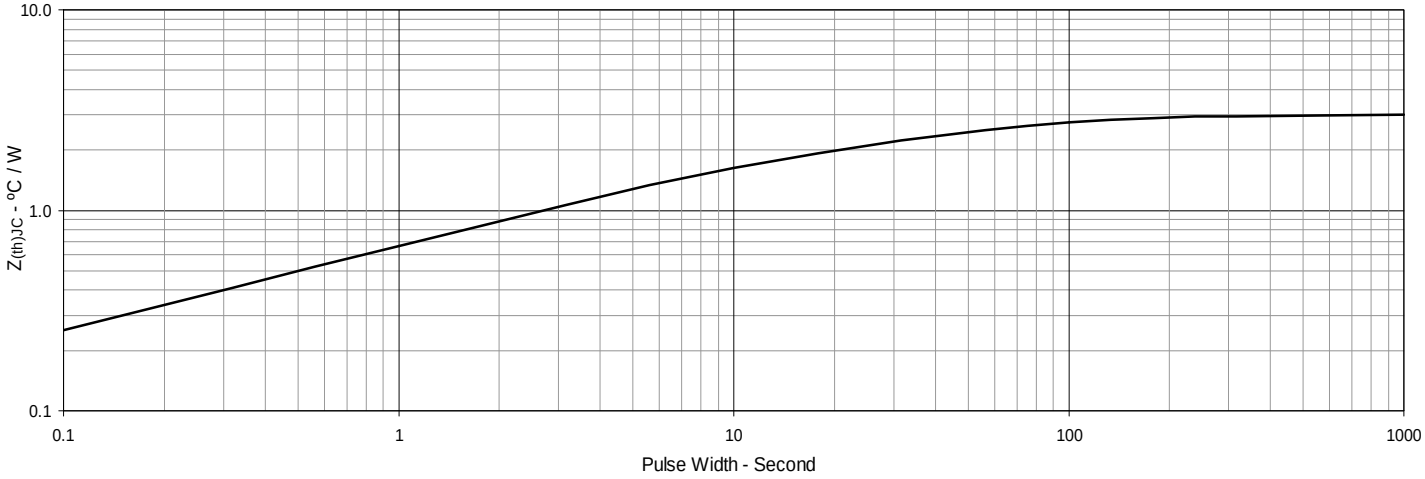


Fig. 11. Maximum Transient Thermal Impedance



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

IXYS:

IXTA06N120P IXTP06N120P