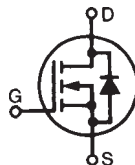


High Voltage Power MOSFET

IXTA05N100
IXTP05N100

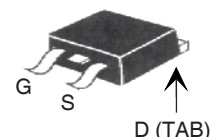
$$\begin{aligned} V_{DSS} &= 1000V \\ I_{D25} &= 750mA \\ R_{DS(on)} &\leq 17\Omega \end{aligned}$$

N-Channel Enhancement Mode
Avalanche Rated

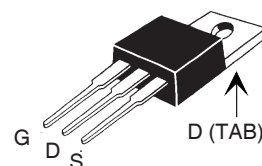


Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	1000	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C , $R_{GS} = 1M\Omega$	1000	V
V_{GSS}	Continuous	± 30	V
V_{GSM}	Transient	± 40	V
I_{D25}	$T_C = 25^\circ\text{C}$	750	mA
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	3	A
I_A	$T_C = 25^\circ\text{C}$	1	A
E_{AS}	$T_C = 25^\circ\text{C}$	100	mJ
dv/dt	$I_S \leq I_{DM}$, $V_{DD} \leq V_{DSS}$, $T_J = 150^\circ\text{C}$	3	V/ns
P_D	$T_C = 25^\circ\text{C}$	40	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 ... +150	$^\circ\text{C}$
T_L	1.6mm (0.062 in.) from case for 10s	300	$^\circ\text{C}$
T_{SOLD}	Plastic body for 10s	260	$^\circ\text{C}$
M_d	Mounting torque (TO-220)	1.13 / 10	Nm/lb.in.
Weight	TO-220	3.0	g
	TO-263	2.5	g

TO-263 (IXTA)



TO-220 (IXTP)



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

Features

- International standard packages
- Fast intrinsic diode
- Fast switching times
- Avalanche Rated
- High voltage, $R_{ds(on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Extended FBSOA

Applications

- Switch-mode and resonant-mode power supplies
- Flyback inverters
- DC choppers
- High frequency matching

Advantages

- High power density
- Space savings

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{DSS}	$V_{GS} = 0V$, $I_D = 250\mu A$	1000		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\mu A$	2.5		4.5 V
I_{GSS}	$V_{GS} = \pm 30V$, $V_{DS} = 0V$			± 100 nA
I_{DSS}	$V_{DS} = V_{DSS}$			25 μA
	$V_{GS} = 0V$ $T_J = 125^\circ\text{C}$			500 μA
$R_{DS(on)}$	$V_{GS} = 10V$, $I_D = 375mA$, Note 1			17 Ω

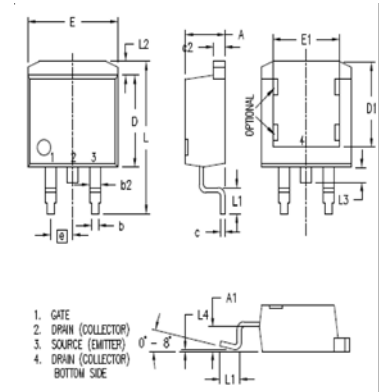
Symbol	Test Conditions	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 20V, I_D = 500mA, \text{ Note 1}$	0.55	0.93	S
C_{iss}	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$		260	pF
C_{oss}			22	pF
C_{rss}			8	pF
$t_{d(on)}$	Resistive Switching Times $V_{GS} = 10V, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 1A$ $R_G = 47\Omega \text{ (External)}$		11	ns
t_r			19	ns
$t_{d(off)}$			40	ns
t_f			28	ns
$Q_{g(on)}$	$V_{GS} = 10V, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 1A$		7.8	nC
Q_{gs}			1.4	nC
Q_{gd}			4.1	nC
R_{thJC}	(TO-220)			3.1 °C/W
R_{thCS}		0.50		°C/W

Source-Drain Diode

Symbol	Test Conditions	Characteristic Values		
		Min.	Typ.	Max.
I_s	$V_{GS} = 0V$			750 mA
I_{SM}	Repetitive, pulse width limited by T_{JM}			3 A
V_{SD}	$I_F = I_s, V_{GS} = 0V, \text{ Note 1}$			1.5 V
t_{rr}	$I_F = I_s, -di/dt = 100A/\mu s$ $V_R = 100V, V_{GS} = 0V$		710	ns

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

TO-263 (IXTA) Outline



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.160	.190	4.06	4.83
A1	.080	.110	2.03	2.79
b	.020	.039	0.51	0.99
b2	.045	.055	1.14	1.40
c	.016	.029	0.40	0.74
c2	.045	.055	1.14	1.40
D	.340	.390	8.64	9.65
D1	.315	.350	8.00	8.89
E	.380	.410	9.65	10.41
E1	.245	.320	6.22	8.13
e	.100 BSC		2.54 BSC	
L	.575	.625	14.61	15.88
L1	.090	.110	2.29	2.79
L2	.040	.055	1.02	1.40
L3	.050	.070	1.27	1.78
L4	0	.005	0	0.13

TO-220 (IXTP) Outline

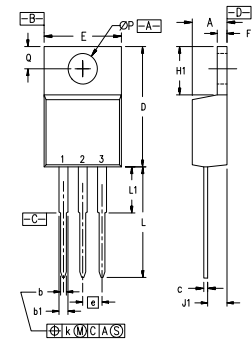


Fig. 1. Output Characteristics
@ 25°C

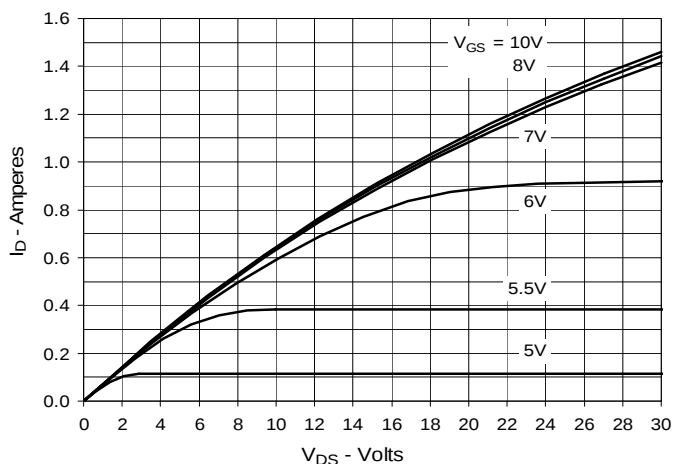


Fig. 2. Output Characteristics
@ 125°C

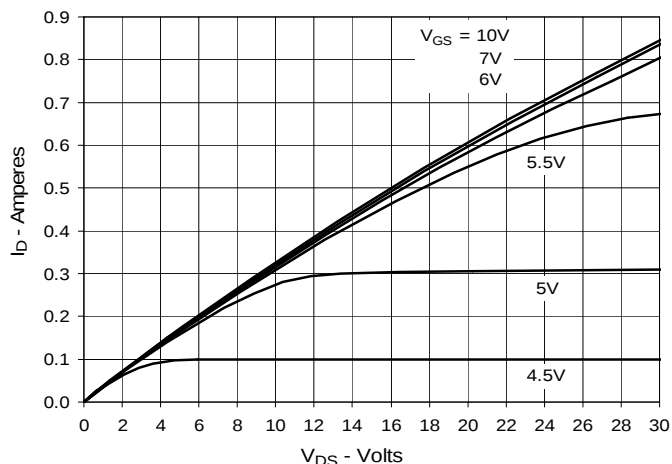


Fig. 3. $R_{DS(on)}$ Normalized to $I_D = 375\text{mA}$
Value vs. Junction Temperature

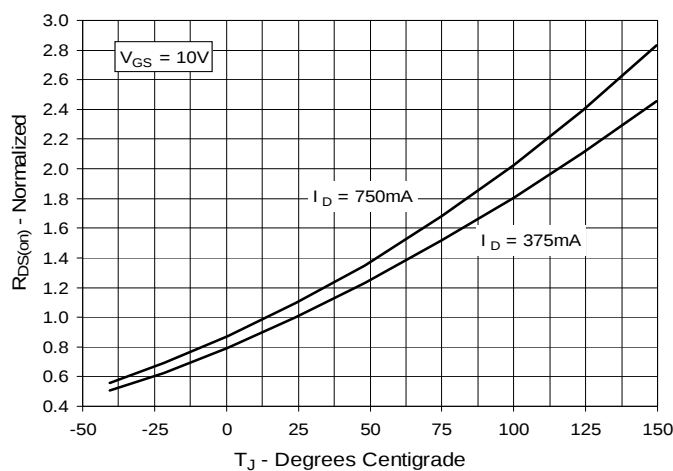


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 375\text{mA}$
Value vs. Drain Current

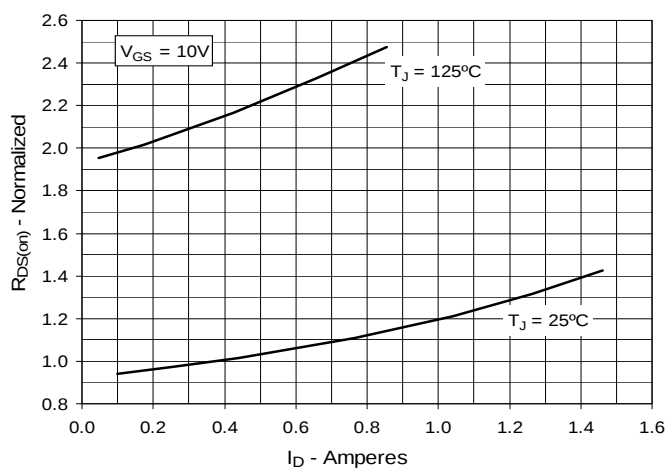


Fig. 5. Maximum Drain Current vs.
Case Temperature

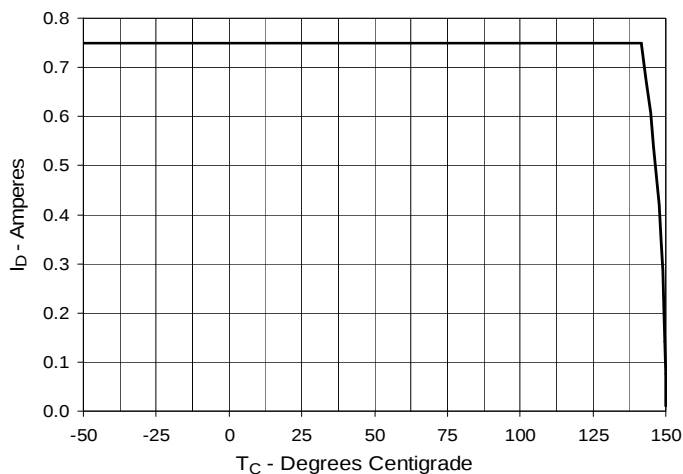


Fig. 6. Input Admittance

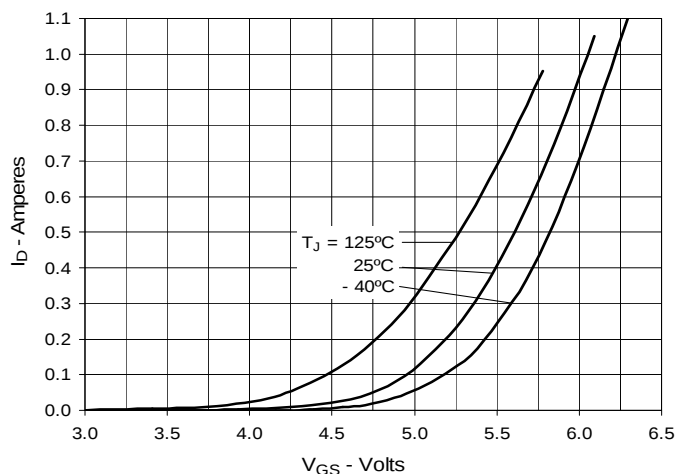


Fig. 7. Transconductance

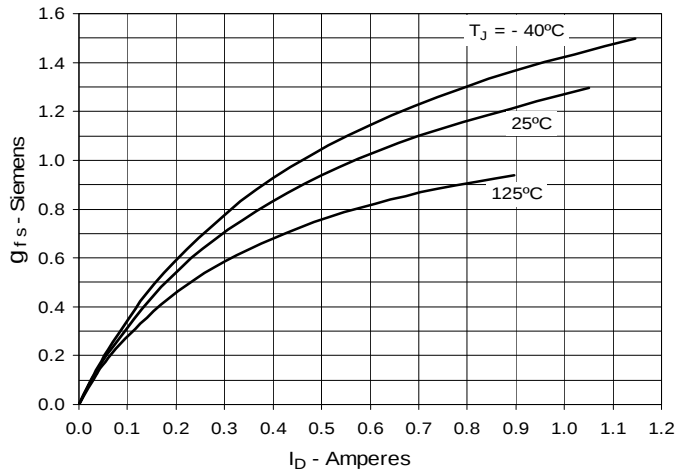


Fig. 8. Forward Voltage Drop of Intrinsic Diode

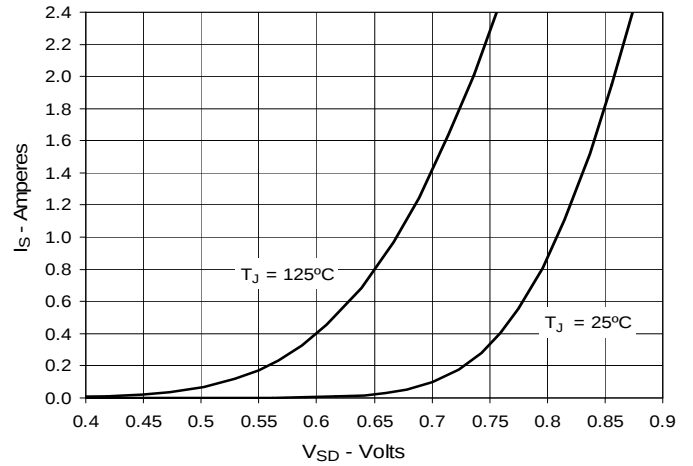


Fig. 9. Gate Charge

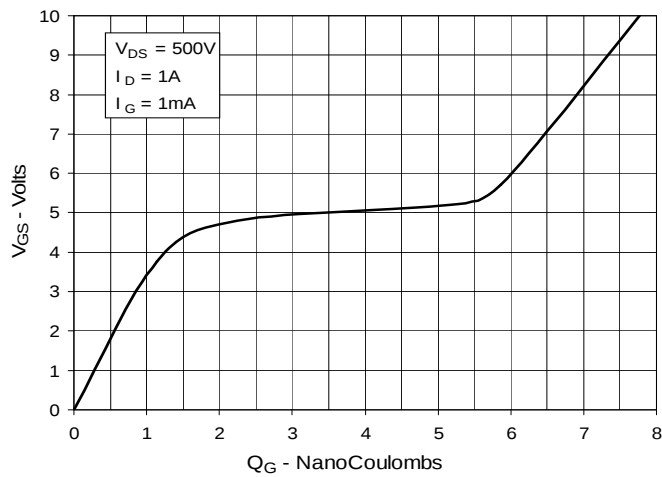


Fig. 10. Capacitance

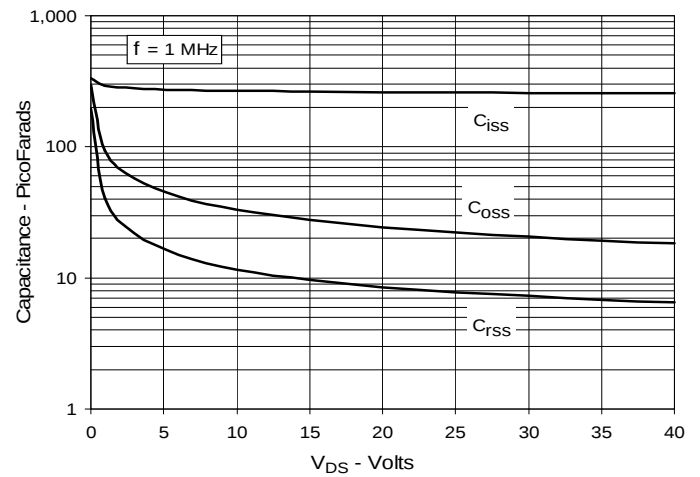


Fig. 11. Maximum Transient Thermal Impedance

