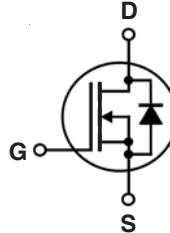


## Depletion Mode MOSFET

**IXTA6N50D2**  
**IXTP6N50D2**  
**IXTH6N50D2**

$V_{DSX} = 500V$   
 $I_{D(on)} \geq 6A$   
 $R_{DS(on)} \leq 550m\Omega$

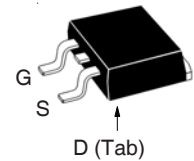
### N-Channel



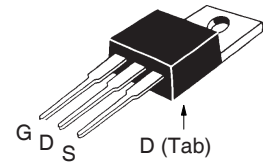
Symbol	Test Conditions	Maximum Ratings	
$V_{DSX}$	$T_J = 25^\circ C$ to $150^\circ C$	500	V
$V_{GSX}$	Continuous	$\pm 20$	V
$V_{GSM}$	Transient	$\pm 30$	V
$P_D$	$T_C = 25^\circ C$	300	W
$T_J$		- 55 ... +150	$^\circ C$
$T_{JM}$		150	$^\circ C$
$T_{stg}$		- 55 ... +150	$^\circ C$
$T_L$	1.6mm (0.062 in.) from Case for 10s	300	$^\circ C$
$T_{SOLD}$	Plastic Body for 10s	260	$^\circ C$
$M_d$	Mounting Torque (TO-220 & TO-247)	1.13 / 10	Nm/lb.in.
<b>Weight</b>	TO-263	2.5	g
	TO-220	3.0	g
	TO-247	6.0	g

Symbol	Test Conditions ( $T_J = 25^\circ C$ , Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
$BV_{DSX}$	$V_{GS} = -5V, I_D = 250\mu A$	500		V
$V_{GS(off)}$	$V_{DS} = 25V, I_D = 250\mu A$	- 2.5		V
$I_{GSX}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 100$ nA
$I_{DSX(off)}$	$V_{DS} = V_{DSX}, V_{GS} = -5V$ $T_J = 125^\circ C$			5 $\mu A$ 50 $\mu A$
$R_{DS(on)}$	$V_{GS} = 0V, I_D = 3A$ , Note 1			550 m $\Omega$
$I_{D(on)}$	$V_{GS} = 0V, V_{DS} = 25V$ , Note 1	6		A

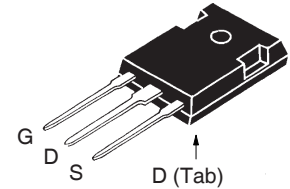
#### TO-263 AA (IXTA)



#### TO-220AB (IXTP)



#### TO-247 (IXTH)



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

#### Features

- Normally ON Mode
- International Standard Packages
- Molding Epoxies Meet UL 94 V-0 Flammability Classification

#### Advantages

- Easy to Mount
- Space Savings
- High Power Density

#### Applications

- Audio Amplifiers
- Start-up Circuits
- Protection Circuits
- Ramp Generators
- Current Regulators
- Active Loads



Fig. 1. Output Characteristics @  $T_J = 25^\circ\text{C}$

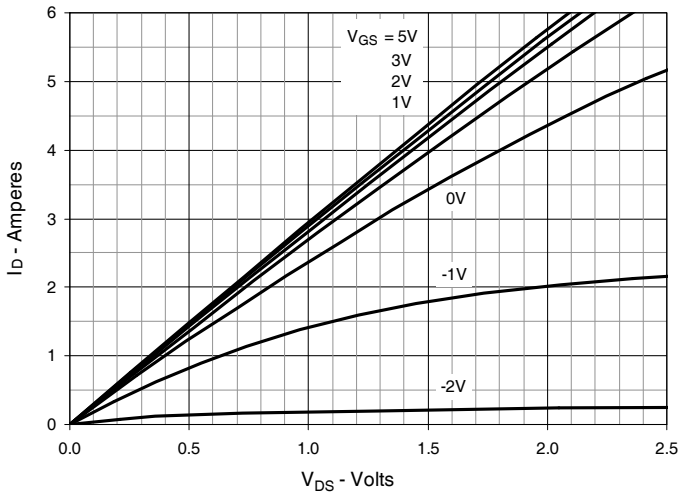


Fig. 2. Extended Output Characteristics @  $T_J = 25^\circ\text{C}$

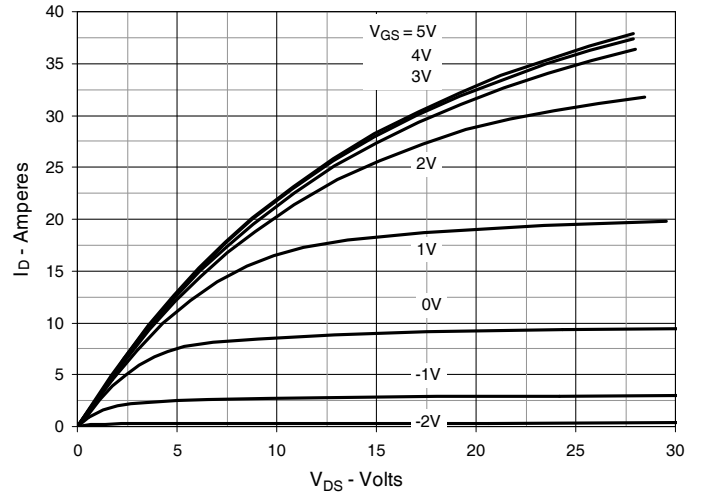


Fig. 3. Output Characteristics @  $T_J = 125^\circ\text{C}$

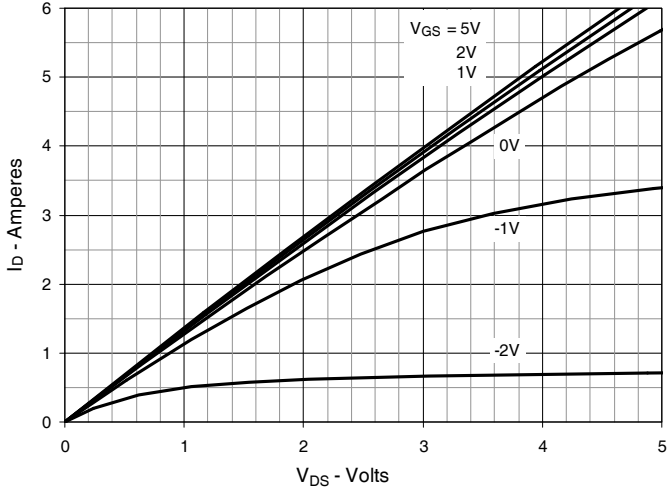


Fig. 4. Drain Current @  $T_J = 25^\circ\text{C}$

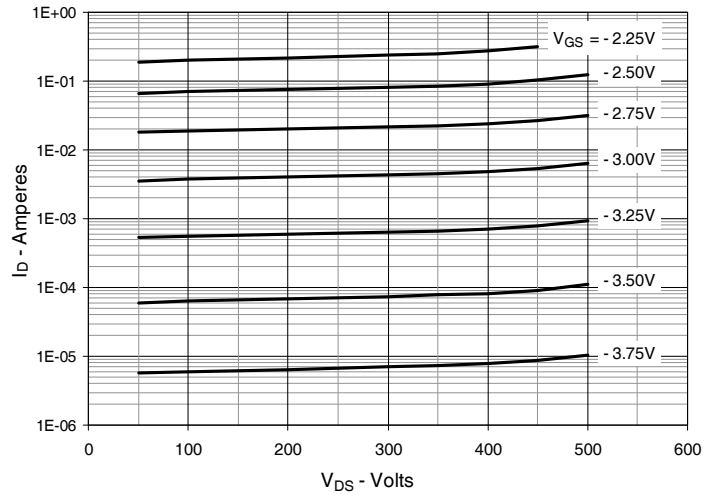


Fig. 5. Drain Current @  $T_J = 100^\circ\text{C}$

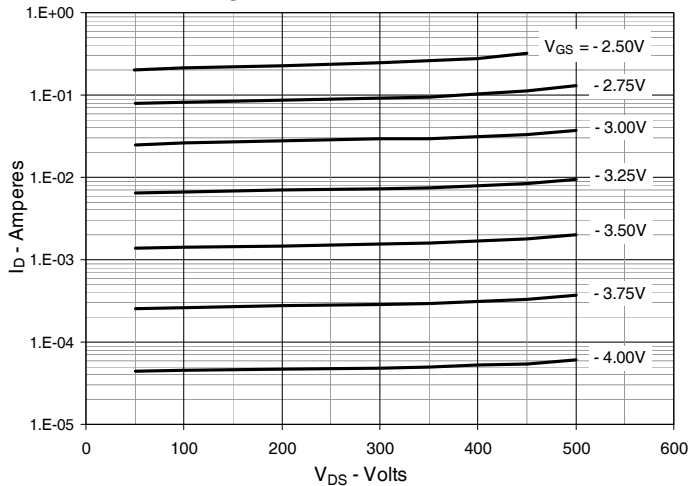


Fig. 6. Dynamic Output Resistance vs. Gate Voltage

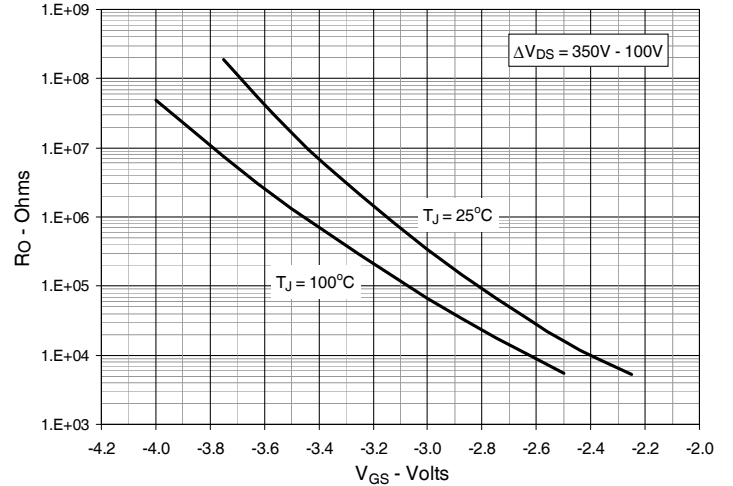


Fig. 7. Normalized  $R_{DS(on)}$  vs. Junction Temperature

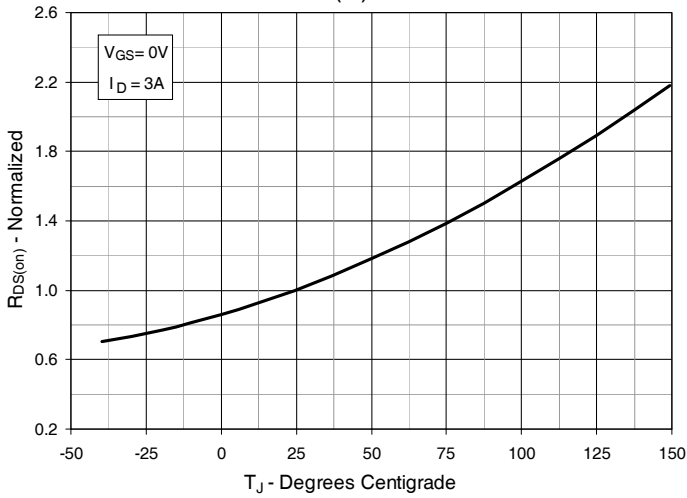


Fig. 8.  $R_{DS(on)}$  Normalized to  $I_D = 3A$  Value vs. Drain Current

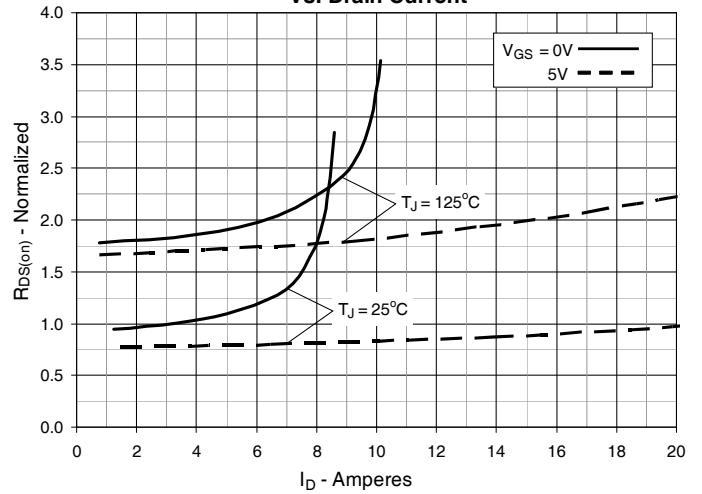


Fig. 9. Input Admittance

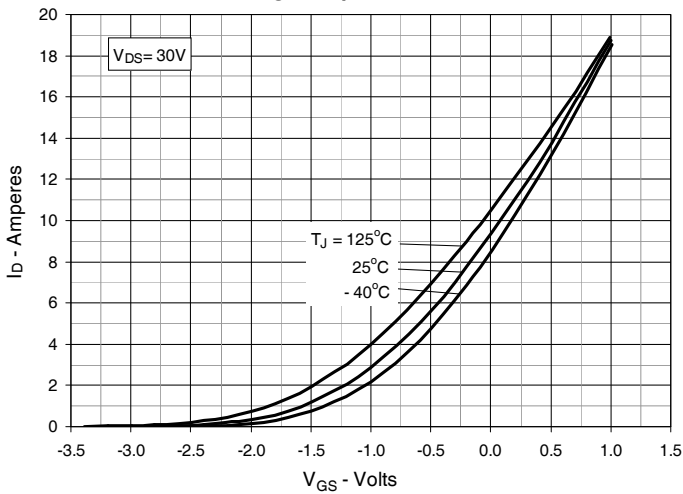


Fig. 10. Transconductance

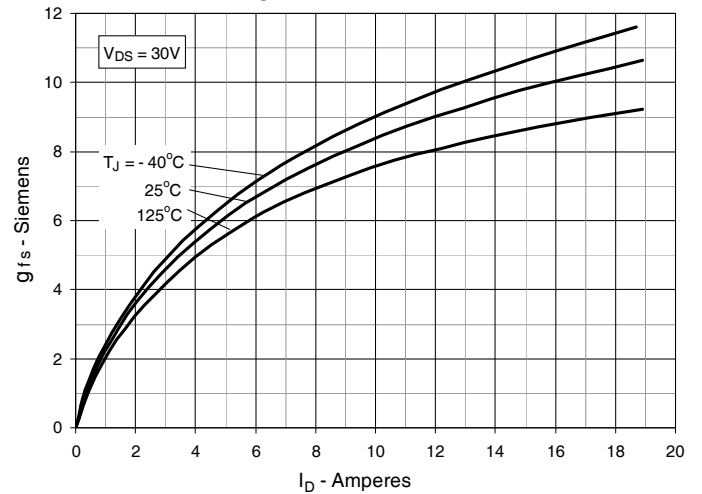


Fig. 11. Breakdown and Threshold Voltages vs. Junction Temperature

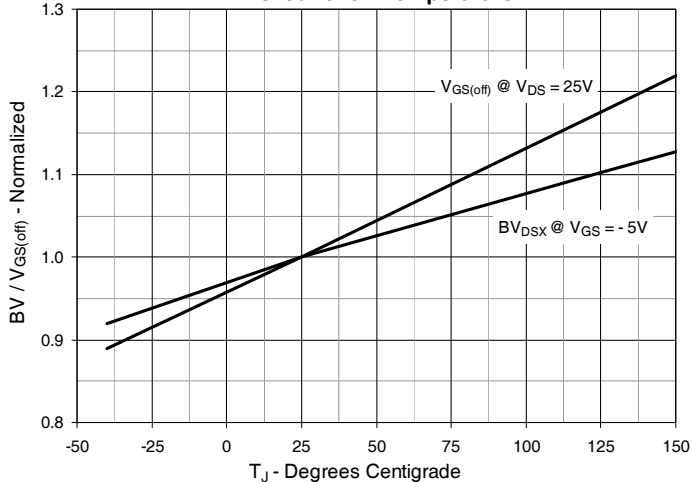


Fig. 12. Forward Voltage Drop of Intrinsic Diode

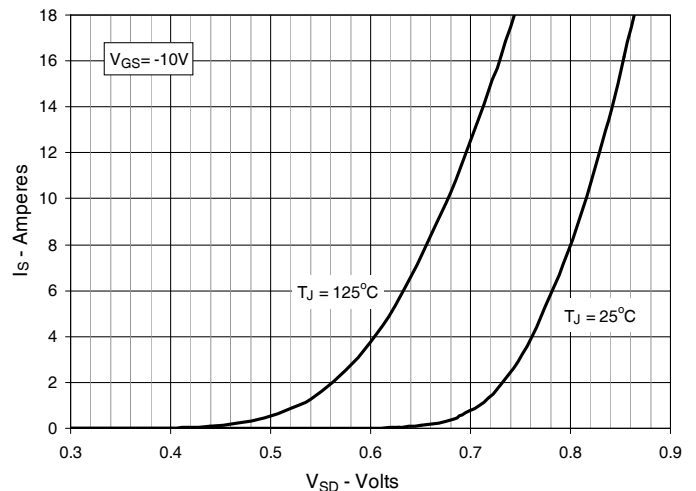


Fig. 13. Capacitance

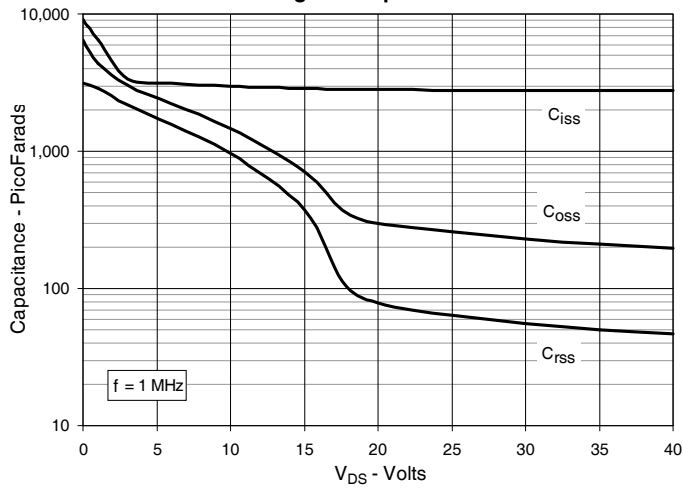


Fig. 14. Gate Charge

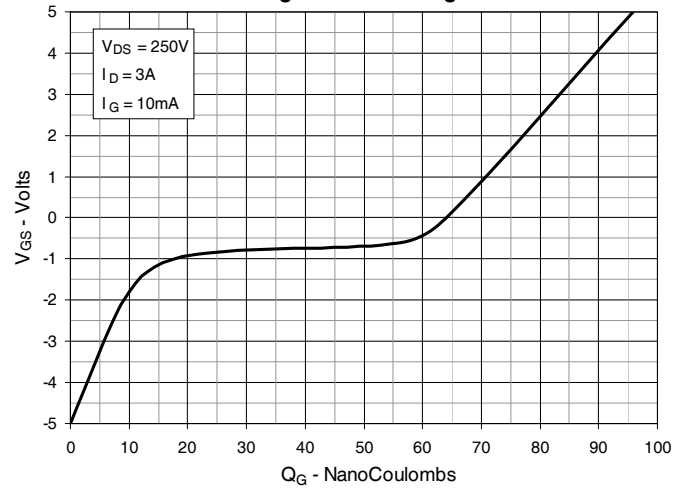


Fig. 15. Forward-Bias Safe Operating Area  
@  $T_C = 25^\circ C$

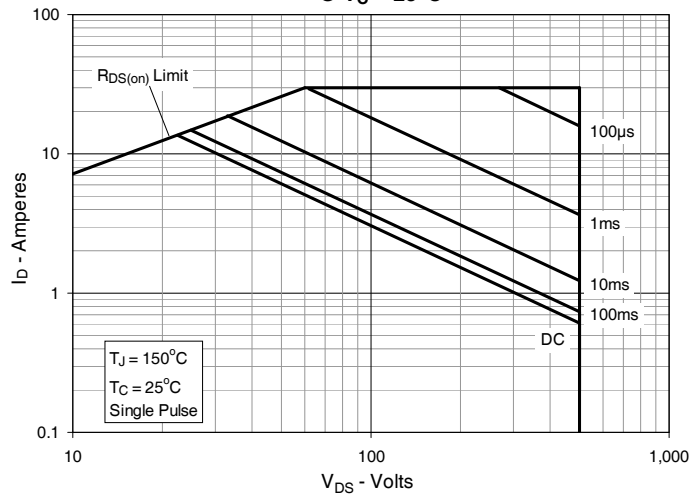


Fig. 16. Forward-Bias Safe Operating Area  
@  $T_C = 75^\circ C$

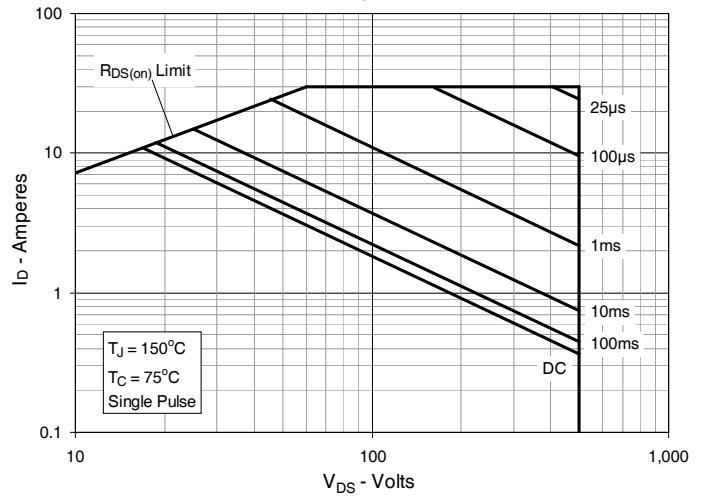
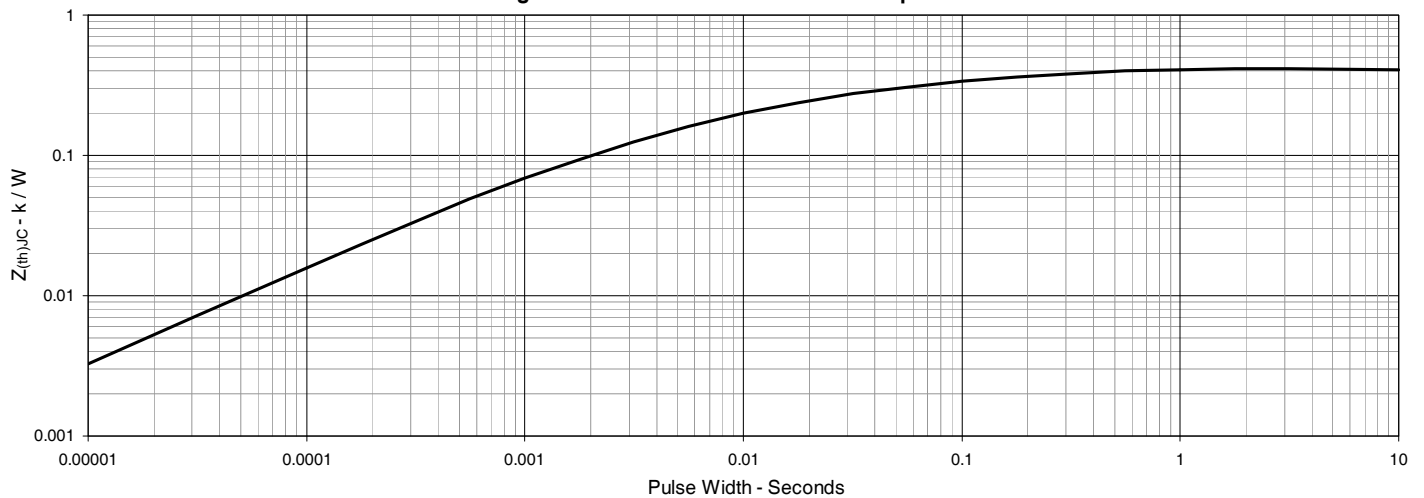


Fig. 17. Maximum Transient Thermal Impedance



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