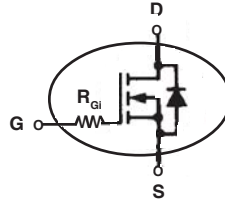


Power MOSFET with Extended FBSOA

IXTH30N50L
IXTQ30N50L
IXTT30N50L

N-Channel Enhancement Mode



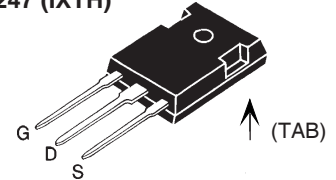
$$V_{DSS} = 500V$$

$$I_{D25} = 30A$$

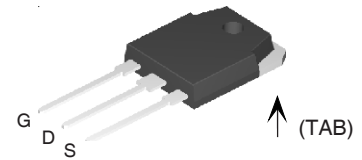
$$R_{DS(on)} \leq 0.20\Omega$$

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ C$ to $150^\circ C$	500	V
V_{DGR}	$T_J = 25^\circ C$ to $150^\circ C$, $R_{GS} = 1M\Omega$	500	V
V_{GSS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ C$	30	A
I_{DM}	$T_C = 25^\circ C$, pulse width limited by T_{JM}	60	A
I_{AR}	$T_C = 25^\circ C$	30	A
E_{AR}	$T_C = 25^\circ C$	50	mJ
E_{AS}		1.5	J
P_D	$T_C = 25^\circ C$	400	W
T_J		-55 to +150	$^\circ C$
T_{JM}		+150	$^\circ C$
T_{stg}		-55 to +150	$^\circ C$
T_L	1.6mm (0.063in) from case for 10s	300	$^\circ C$
T_{SOLD}	Plastic body for 10s	260	$^\circ C$
M_d	Mounting torque (TO-247, TO-3P)	1.13/10	Nm/lb.in.
Weight	TO-247	6.0	g
	TO-3P	5.5	g
	TO-268	5.0	g

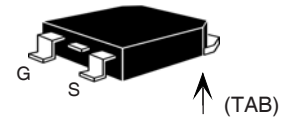
TO-247 (IXTH)



TO-3P (IXTQ)



TO-268 (IXTT)



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

Features

- Designed for linear operation
- International standard packages
- Unclamped Inductive Switching (UIS) rated.
- Molding epoxies meet UL 94 V-0 flammability classification
- Integrated gate resistor for easy paralleling
- Guaranteed FBSOA at $75^\circ C$

Applications

- Solid state circuit breakers
- Soft start controls
- Linear amplifiers
- Programmable loads
- Current regulators

Symbol	Test Conditions	Characteristic Values		
		Min.	Typ.	Max.
$(T_J = 25^\circ C, \text{ unless otherwise specified})$				
BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	500		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}	$V_{DS} = V_{DSS}$			50 μA
	$V_{GS} = 0V$ $T_J = 125^\circ C$			300 μA
$R_{DS(on)}$	$V_{GS} = 10V, I_D = 0.5 \cdot I_{D25}$, Note 1			0.20 Ω

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

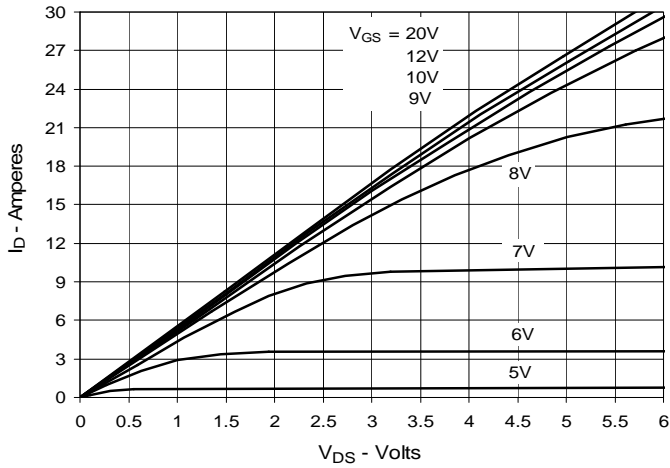


Fig. 2. Extended Output Characteristics
@ $T_J = 25^\circ\text{C}$

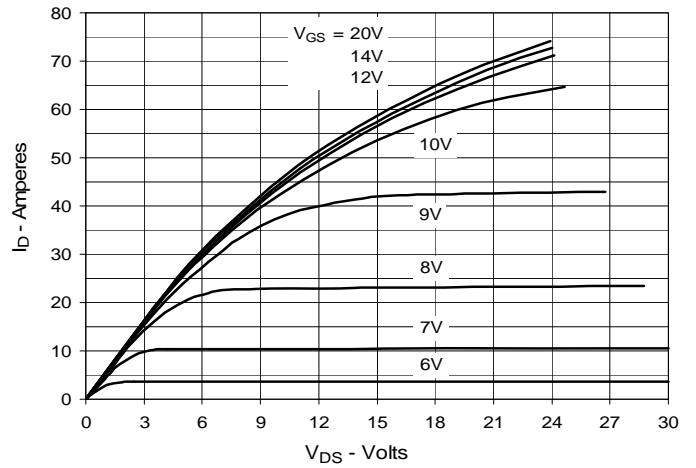


Fig. 3. Output Characteristics
@ $T_J = 125^\circ\text{C}$

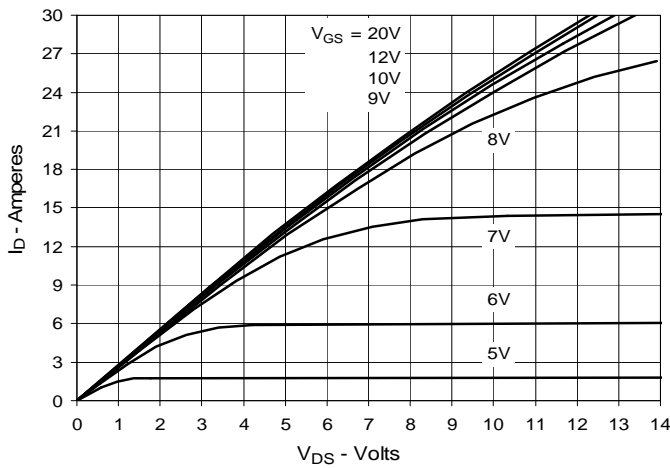


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 15\text{A}$ Value vs. Junction Temperature

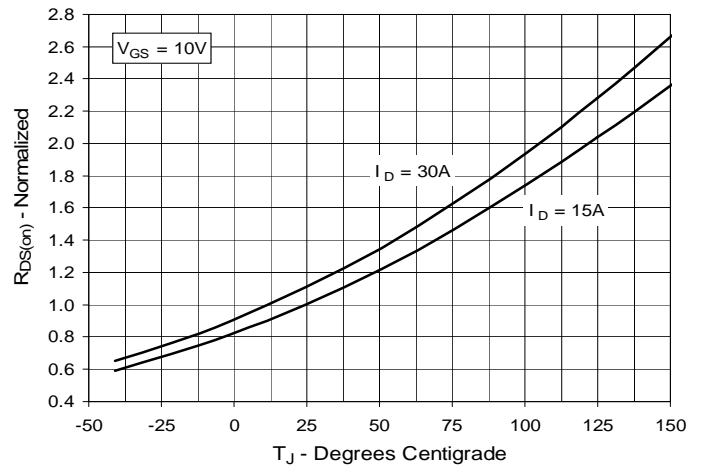


Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 15\text{A}$ Value vs. Drain Current

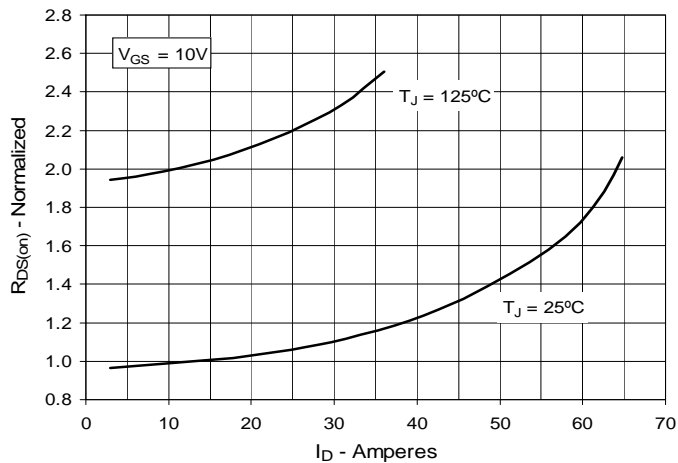


Fig. 6. Maximum Drain Current vs. Case Temperature

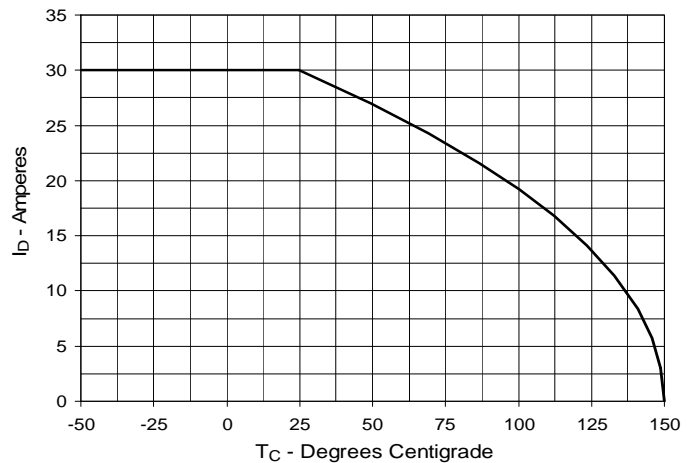


Fig. 7. Input Admittance

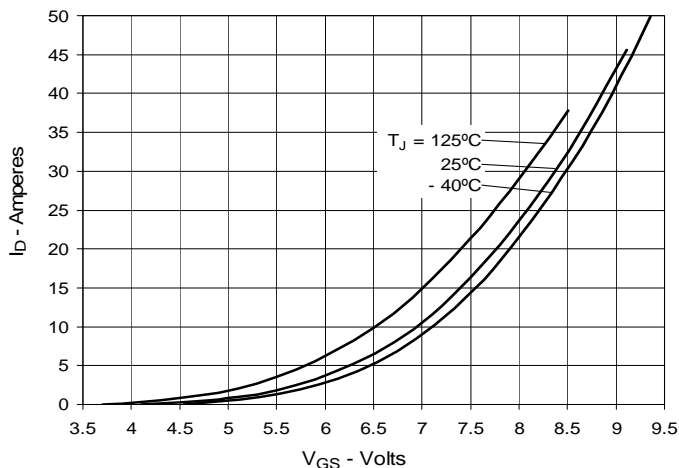


Fig. 8. Transconductance

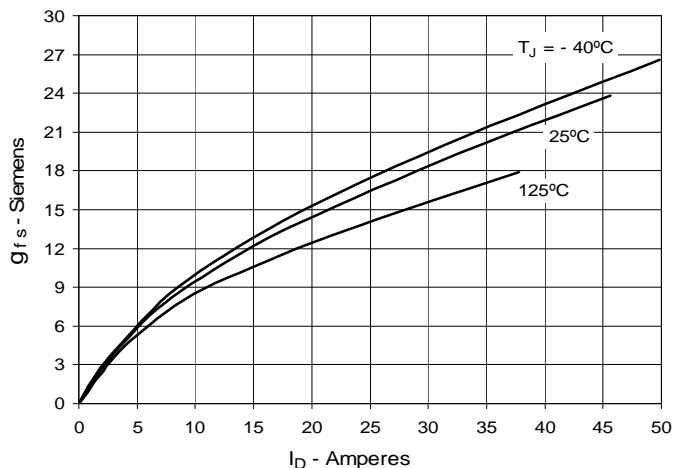


Fig. 9. Forward Voltage Drop of Intrinsic Diode

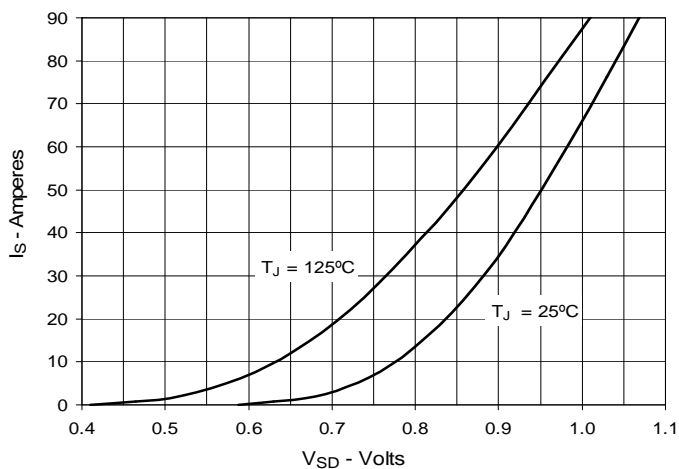


Fig. 10. Gate Charge

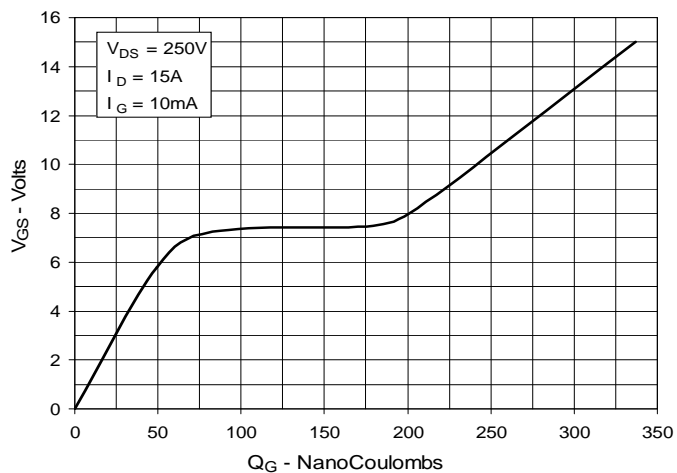


Fig. 11. Capacitance

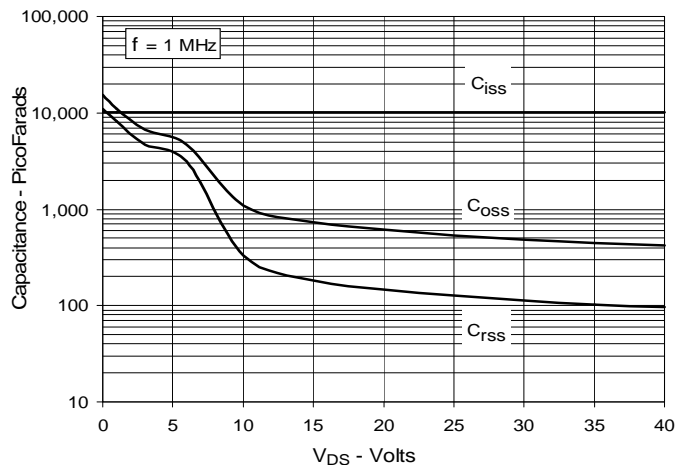


Fig. 12. Maximum Transient Thermal Impedance

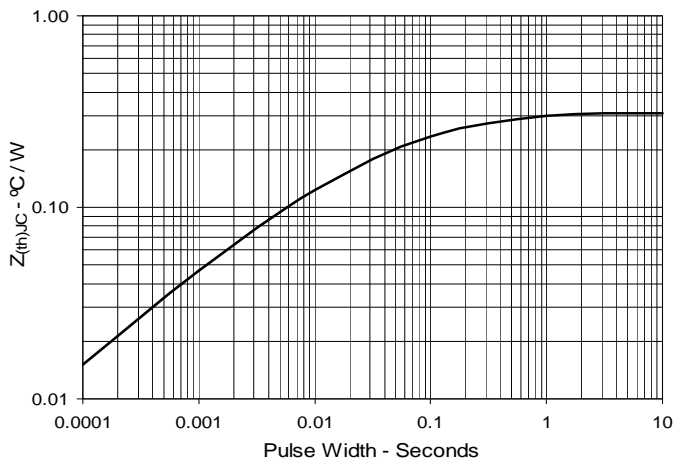


Fig. 13. Forward-Bias Safe Operating Area
@ $T_C = 25^\circ\text{C}$

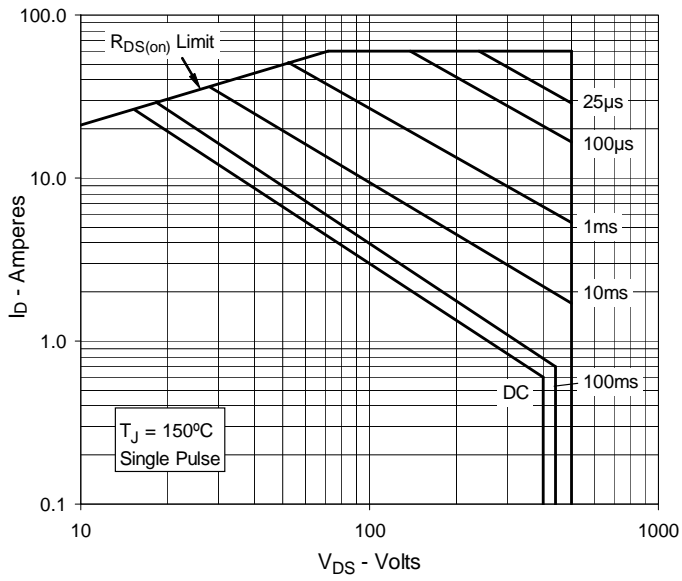
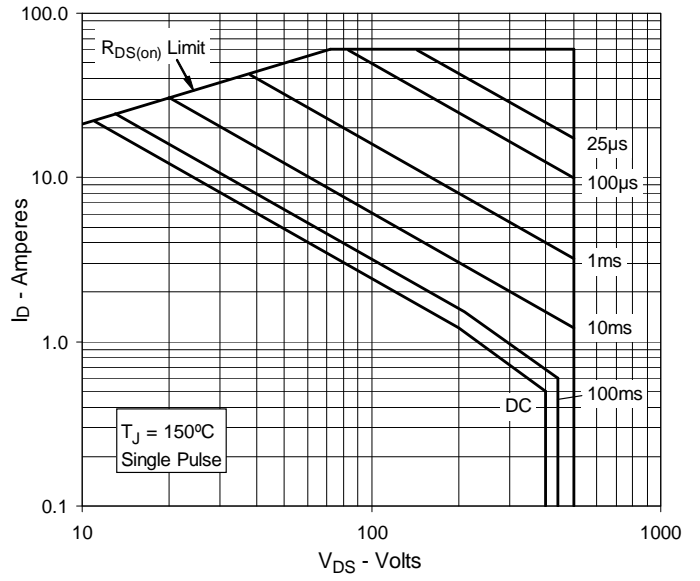


Fig. 14. Forward-Bias Safe Operating Area
@ $T_C = 75^\circ\text{C}$





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