



**THE DATASHEET OF
IXTQ42N25P**

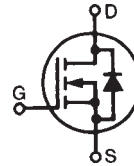


PolarHT™ Power MOSFET

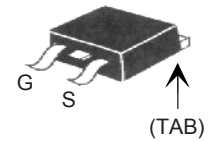
IXTA 42N25P
IXTP 42N25P
IXTQ 42N25P

V_{DSS} = 250 V
I_{D25} = 42 A
R_{DS(on)} ≤ 84 mΩ

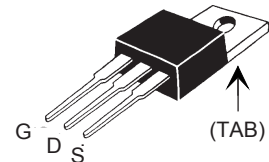
N-Channel Enhancement Mode
Avalanche Rated



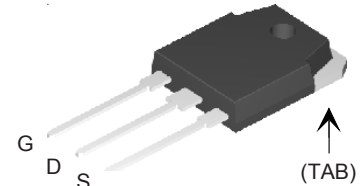
TO-263 (IXTA)



TO-220 (IXTP)



TO-3P (IXTQ)



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

Symbol	Test Conditions	Maximum Ratings	
V _{DSS}	T _J = 25° C to 150° C	250	V
V _{DGR}	T _J = 25° C to 150° C; R _{GS} = 1 MΩ	250	V
V _{GS}	Continuous	±20	V
V _{GSM}	Transient	±30	V
I _{D25}	T _C = 25° C	42	A
I _{DM}	T _C = 25° C, pulse width limited by T _{JM}	110	A
I _{AR}	T _C = 25° C	42	A
E _{AR}	T _C = 25° C	30	mJ
E _{AS}	T _C = 25° C	1.0	J
dv/dt	I _S ≤ I _{DM} , di/dt ≤ 100 A/μs, V _{DD} ≤ V _{DSS} , T _J ≤ 150° C, R _G = 10 Ω	10	V/ns
P _D	T _C = 25° C	300	W
T _J		-55 ... +150	°C
T _{JM}		150	°C
T _{stg}		-55 ... +150	°C
T _L	1.6 mm (0.062 in.) from case for 10 s	300	°C
T _{SOLD}	Plastic body for 10 s	260	°C
M _d	Mounting torque (TO-3P / TO-220)	1.13/10	Nm/lb.in.
Weight	TO-3P	5.5	g
	TO-220	4	g
	TO-263	3	g

Symbol	Test Conditions (T _J = 25° C, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV _{DSS}	V _{GS} = 0 V, I _D = 250 μA	250		V
V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	3.0		5.5 V
I _{GSS}	V _{GS} = ±20 V _{DC} , V _{DS} = 0			±100 nA
I _{DSS}	V _{DS} = V _{DSS} V _{GS} = 0 V T _J = 125° C			25 μA
				250 μA
R _{DS(on)}	V _{GS} = 10 V, I _D = 0.5 I _{D25} Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %			84 mΩ

Features

- † International standard packages
- † Unclamped Inductive Switching (UIS) rated
- † Low package inductance
- easy to drive and to protect

Advantages

- † Easy to mount
- † Space savings
- † High power density

Fig. 1. Output Characteristics
@ 25°C

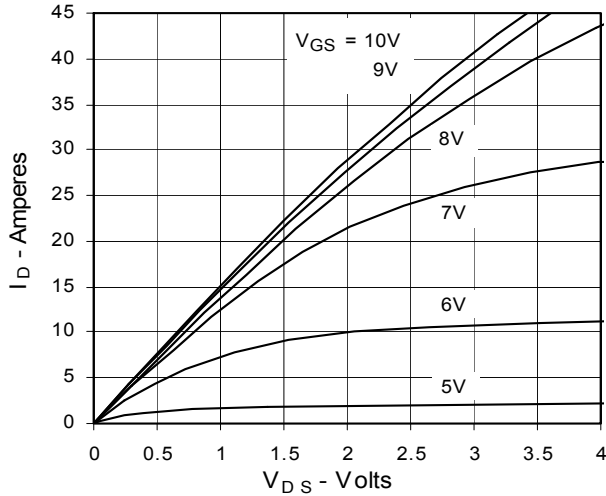


Fig. 2. Extended Output Characteristics
@ 25°C

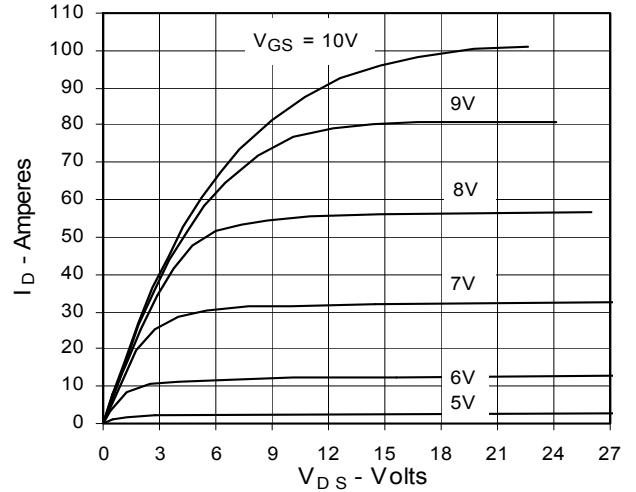


Fig. 3. Output Characteristics
@ 125°C

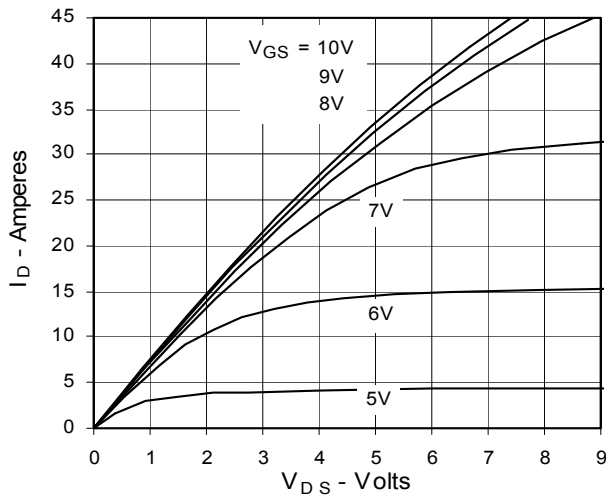


Fig. 4. $R_{DS(on)}$ Normalized to 0.5 I_{D25} Value vs. Junction Temperature

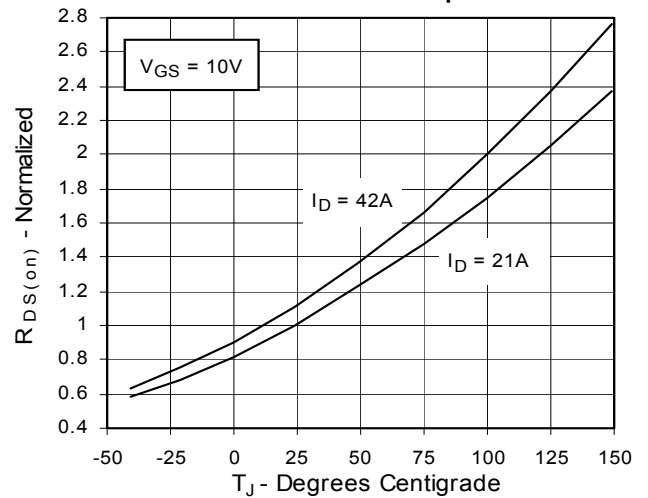


Fig. 5. $R_{DS(on)}$ Normalized to 0.5 I_{D25} Value vs. I_D

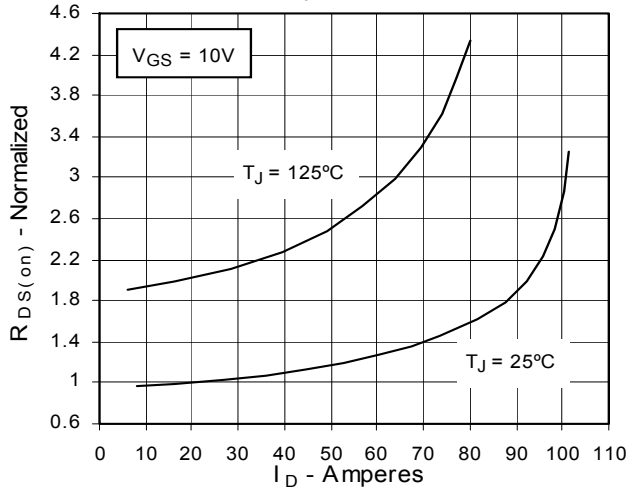


Fig. 6. Drain Current vs. Case Temperature

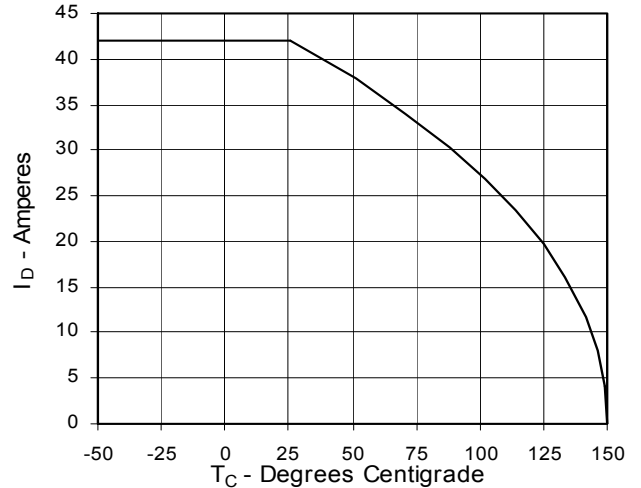


Fig. 7. Input Admittance

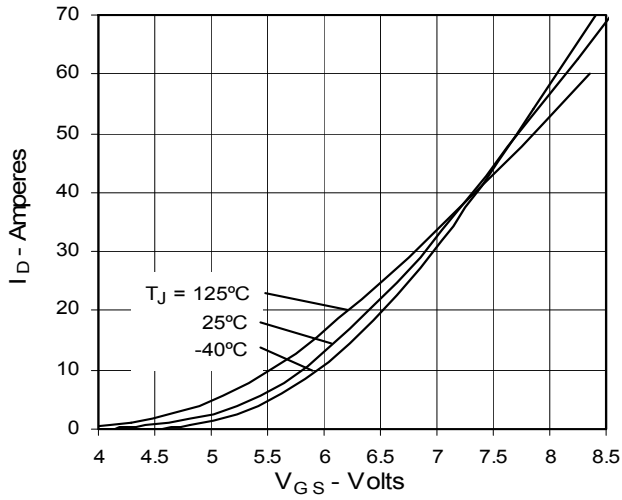


Fig. 8. Transconductance

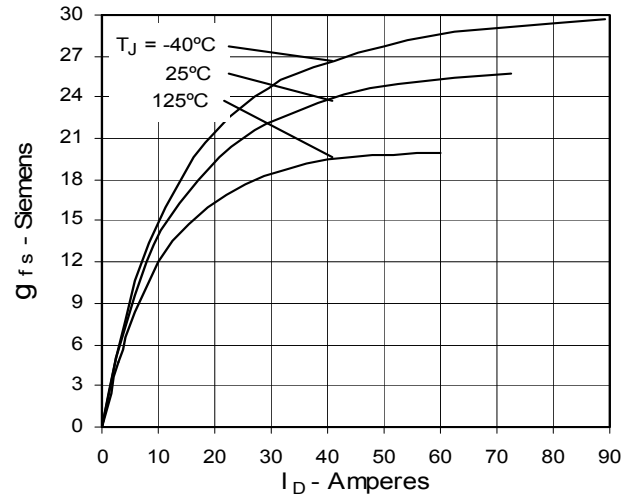


Fig. 9. Source Current vs. Source-To-Drain Voltage

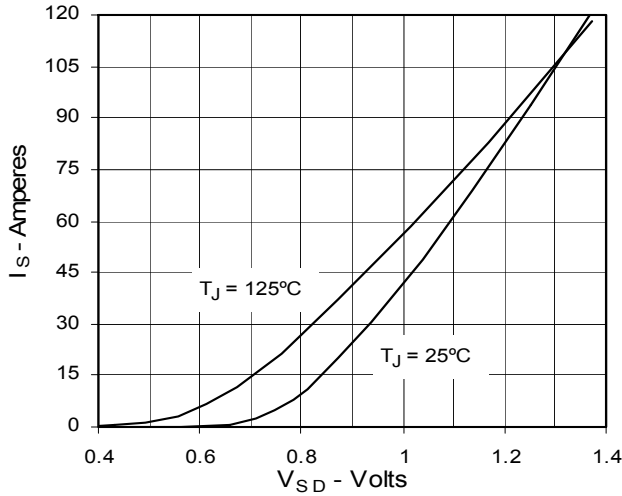


Fig. 10. Gate Charge

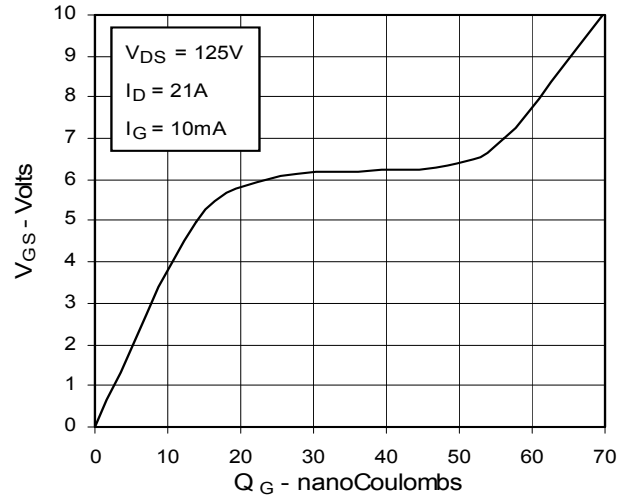


Fig. 11. Capacitance

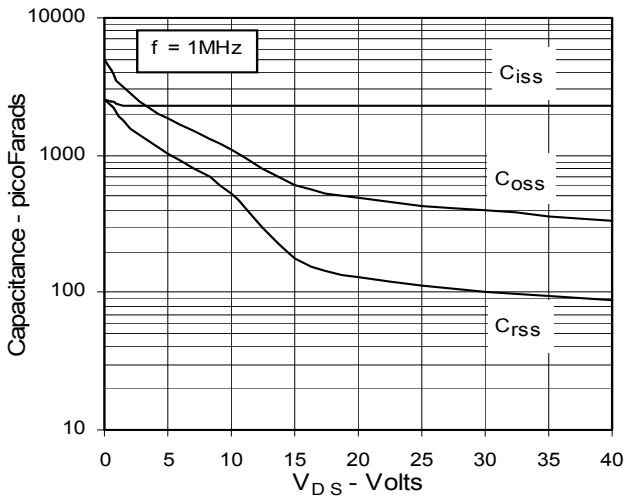


Fig. 12. Forward-Bias Safe Operating Area

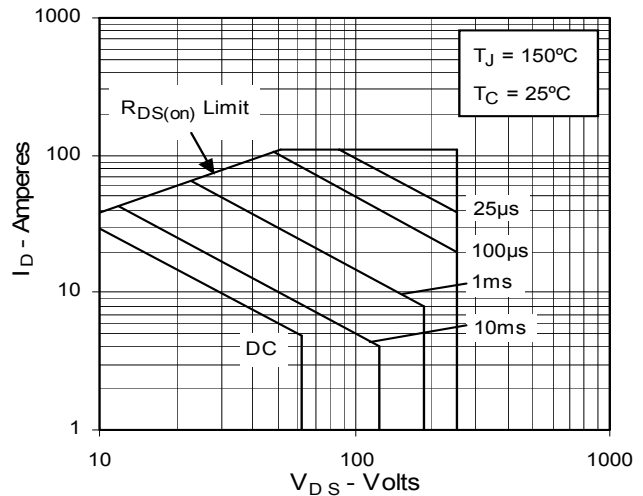
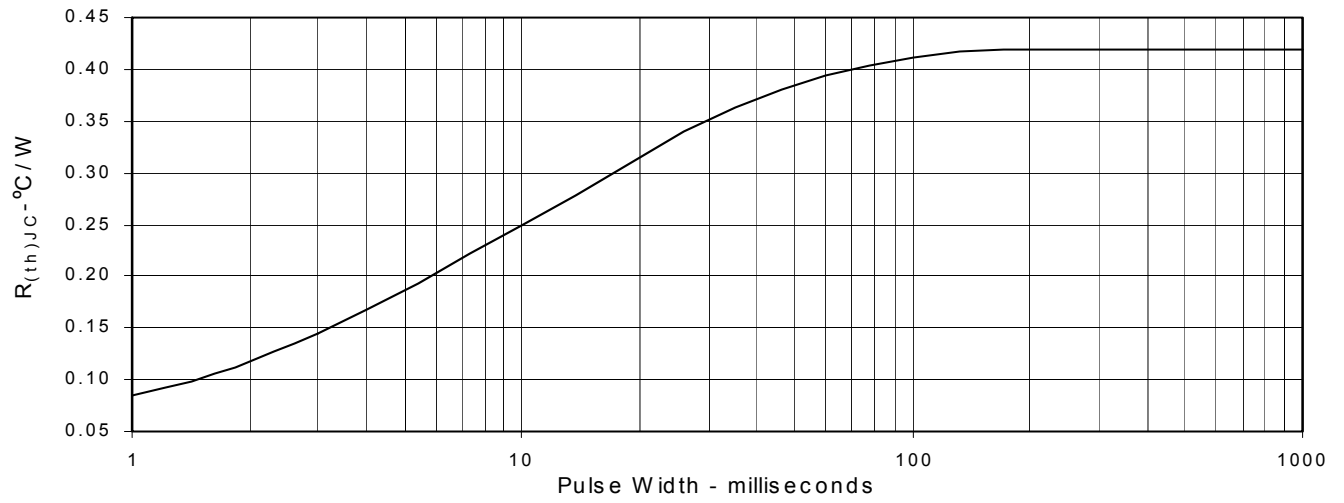


Fig. 13. Maximum Transient Thermal Resistance













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