HONGXIN TIME
Electronic Technology Co., Ltd

HXN7403

P-Channel Enhancement Mode MOSFET

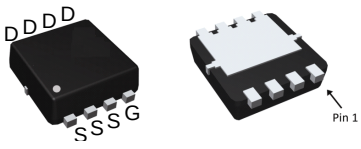
Features

- -30V/-32A,
  $R_{DS(ON)}$ = 19mΩ(max.) @ V_{GS} =-10V
  $R_{DS(ON)}$ = 32mΩ(max.) @ V_{GS} =-4.5V
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available
  (RoHS Compliant)

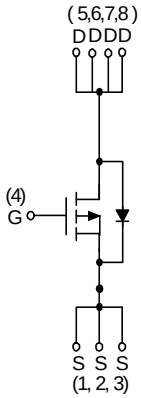
Applications

- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems.

Pin Description



DFN3x3A-8_EP



P-Channel MOSFET

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Absolute Maximum Ratings (T_A = 25°C Unless Otherwise Noted)

Symbol	Parameter		Rating	Unit
Common Ratings				
V_{DSS}	Drain-Source Voltage		-30	V
V_{GSS}	Gate-Source Voltage		±25	
T_J	Maximum Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 to 150	
I_S	Diode Continuous Forward Current	T_C=25°C	-16	A
I_D	Continuous Drain Current	T_C=25°C	-32	
		T_C=100°C	-20	
I_{DM}	Pulsed Drain Current	T_C=25°C	-70 *	
P_D	Maximum Power Dissipation	T_C=25°C	29.8	W
		T_C=100°C	11.9	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	Steady State	4.2	°C/W
I_D	Continuous Drain Current	T_A=25°C	-10.5 [b]	A
		T_A=70°C	-8.4 [b]	
P_D	Maximum Power Dissipation	T_A=25°C	3.1	W
		T_A=70°C	2	
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	t ≤ 10s	40	°C/W
		Steady State	75	
I_{AS} [a]	Avalanche Current, Single pulse	L=0.5mH	14	A
E_{AS} [a]	Avalanche Energy, Single pulse	L=0.5mH	49	mJ

Note * : Current limited by bond wire.

Note a : UIS tested and pulse width are limited by maximum junction temperature 150°C (initial temperature T_J = 25°C).

Note b : t＜10s.

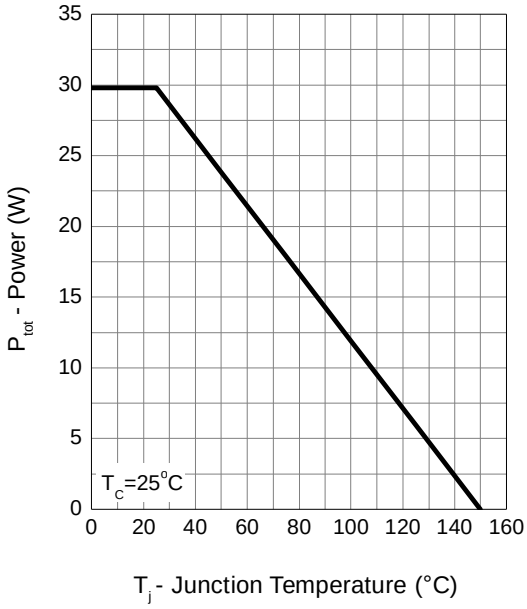
Electrical Characteristics (T_A = 25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=-250μA	-30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-24V, V_{GS}=0V	-	-	-1	μA
		T_J=85°C	-	-	-30	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=-250μA	-1.3	-1.8	-2.3	V
I_{GSS}	Gate Leakage Current	V_{GS}=±25V, V_{DS}=0V	-	-	±10	μA
$R_{DS(ON)}$ [c]	Drain-Source On-state Resistance	V_{GS}=-10V, I_{DS}=-16A	-	15	19	mΩ
		V_{GS}=-4.5V, I_{DS}=-8A	-	24	32	
Diode Characteristics						
V_{SD} [c]	Diode Forward Voltage	I_{SD}=-1A, V_{GS}=0V	-	-0.7	-1	V
t_{rr} [d]	Reverse Recovery Time	I_{SD}=-16A, dI_{SD}/dt=100A/μs	-	18	-	ns
Q_{rr} [d]	Reverse Recovery Charge		-	9	-	nC
Dynamic Characteristics [d]						
R_g	Gate Resistance	V_{GS}=0V, V_{DS}=0V,F=1MHz	-	4	-	Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-15V, Frequency=1.0MHz	-	1000	-	pF
C_{oss}	Output Capacitance		-	220	-	
C_{rss}	Reverse Transfer Capacitance		-	170	-	
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=-15V, R_L=15Ω, I_{DS}=-1A, V_{GEN}=-10V, R_G=6Ω	-	11.2	-	ns
t_r	Turn-on Rise Time		-	10.6	-	
$t_{d(OFF)}$	Turn-off Delay Time		-	37	-	
t_f	Turn-off Fall Time		-	50	-	
Gate Charge Characteristics [d]						
Q_g	Total Gate Charge	V_{DS}=-15V, V_{GS}=-10V, I_{DS}=-16A	-	20	-	nC
Q_{gs}	Gate-Source Charge		-	1.1	-	
Q_{gd}	Gate-Drain Charge		-	7.7	-	

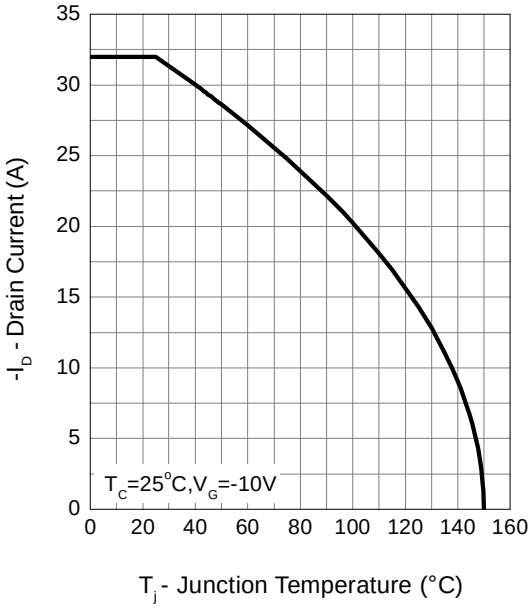
Note c：Pulse test ; pulse width≤300μs, duty cycle≤2%.
Note d：Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

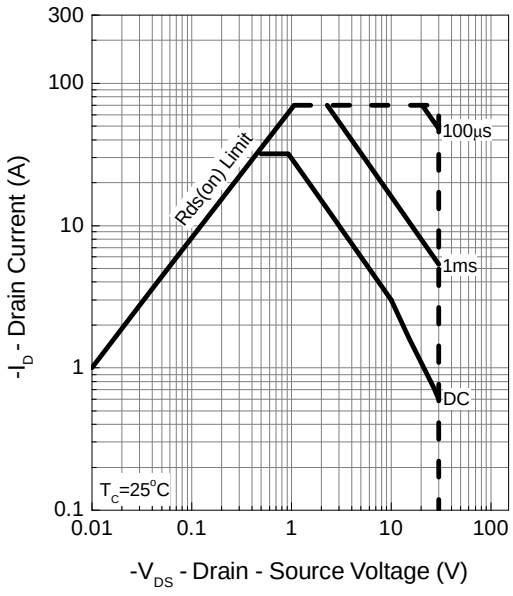
Power Dissipation



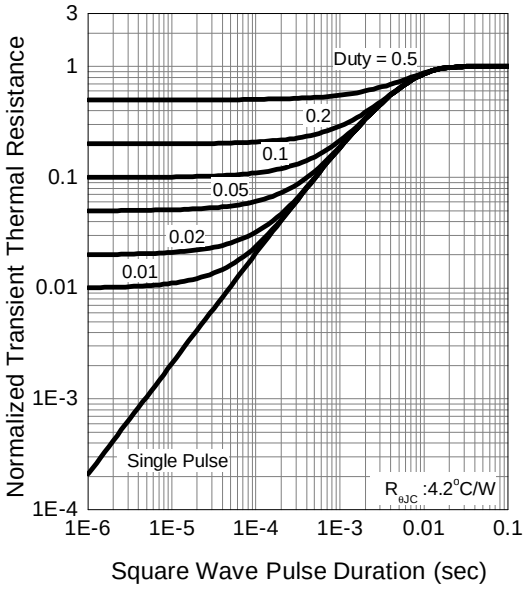
Drain Current



Safe Operation Area

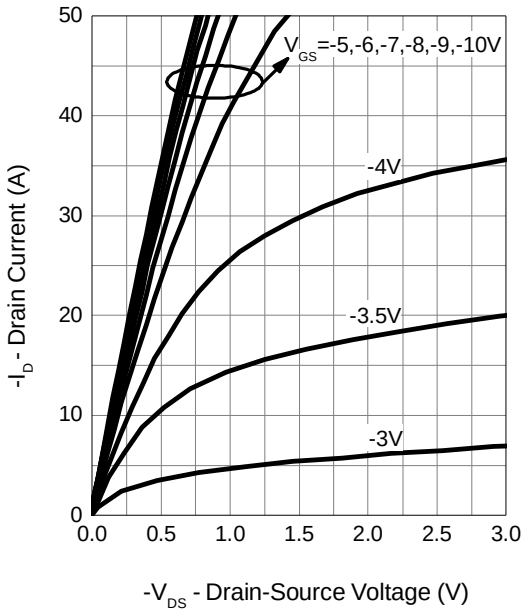


Thermal Transient Impedance

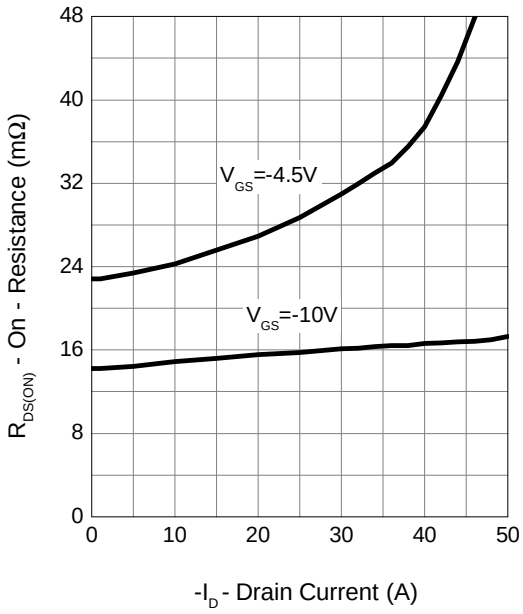


Typical Operating Characteristics (Cont.)

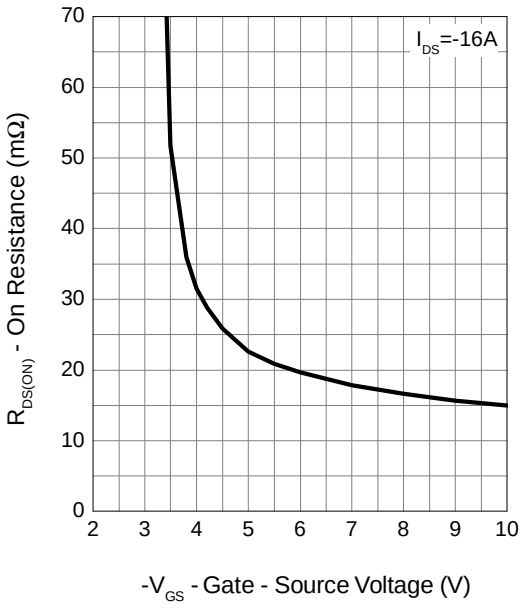
Output Characteristics



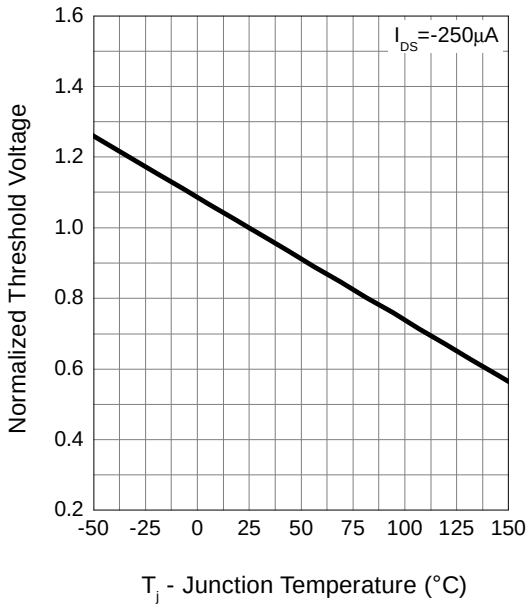
Drain-Source On Resistance



Gate-Source On Resistance

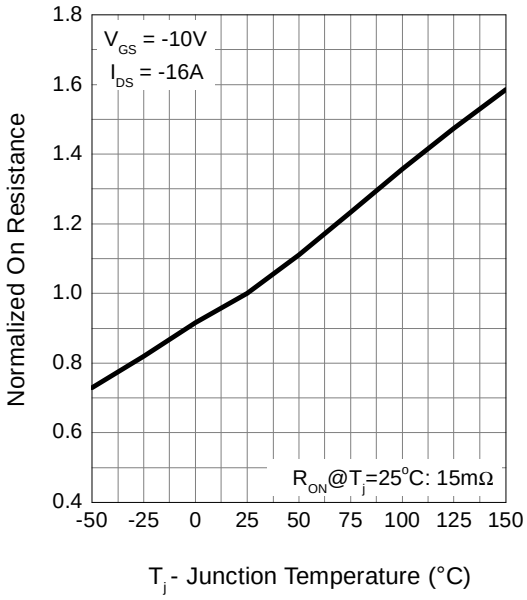


Gate Threshold Voltage

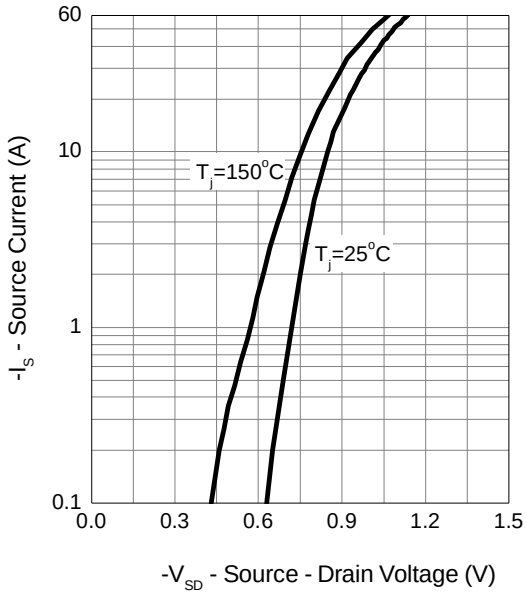


Typical Operating Characteristics (Cont.)

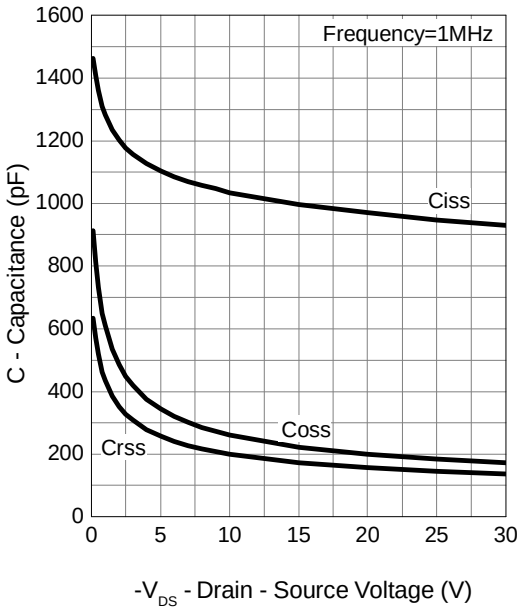
Drain-Source On Resistance



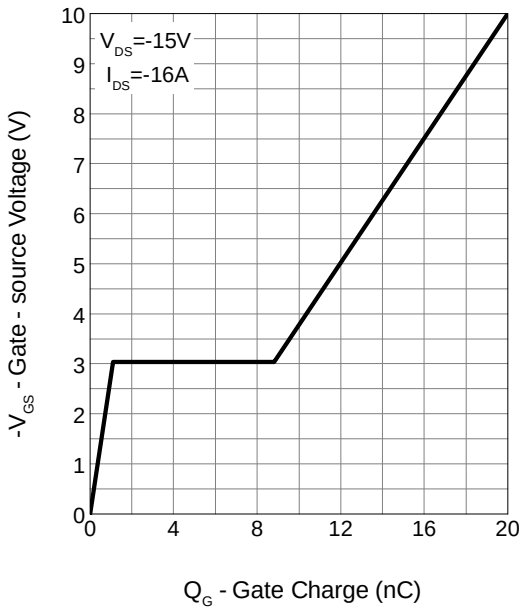
Source-Drain Diode Forward



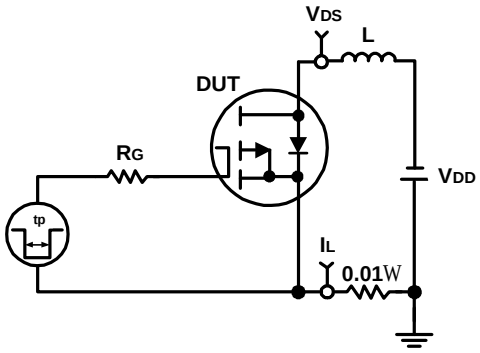
Capacitance

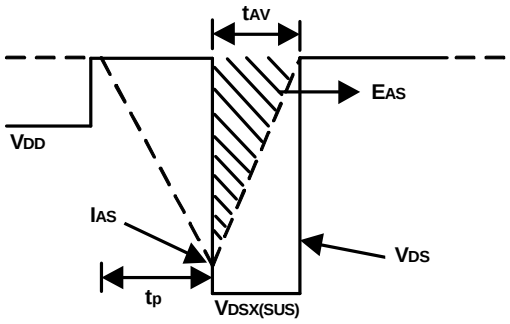


Gate Charge



Avalanche Test Circuit and Waveforms





Switching Time Test Circuit and Waveforms