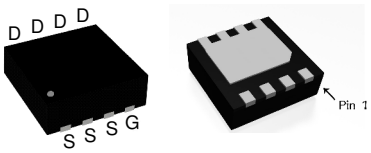
Features

- -20V/-86.2A,
  $R_{DS(ON)}$ = 3mΩ(typ.) @ V_{GS} =-10V
  $R_{DS(ON)}$ = 3.9mΩ(typ.) @ V_{GS} =-4.5V
  $R_{DS(ON)}$ = 6.2mΩ(typ.) @ V_{GS} =-2.5V
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

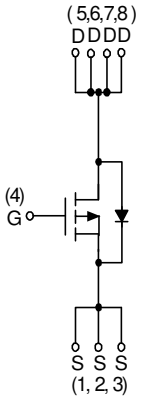
Applications

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

Pin Description



DFN3.3x3.3 -8_EP



P-Channel MOSFET

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

Symbol	Parameter		Rating	Unit
V_{DSS}	Drain-Source Voltage		-20	V
V_{GSS}	Gate-Source Voltage		±12	
I_{DM} [a]	Pulsed Drain Current (V_{GS}=-4.5V)		-240	A
I_D [c]	Continuous Drain Current	T_C=25°C	-80	
		T_C=100°C	-60	
I_S [a]	Diode Continuous Forward Current		-80	
T_J	Maximum Junction Temperature		150	°C
I_{AS} [d]	Avalanche Current, Single pulse	L=0.1mH	-20	A
E_{AS} [d]	Avalanche Energy, Single pulse	L=0.1mH	20	mJ
T_{STG}	Storage Temperature Range		-55 to 150	°C
P_D [c]	Maximum Power Dissipation	T_C=25°C	62.5	W
		T_C=100°C	25	
$R_{\theta JA}$ [a,b]	Thermal Resistance-Junction to Ambient	t ≤ 10s	30	°C/W
		Steady State	70	
$R_{\theta JC}$ [c]	Thermal Resistance-Junction to Case		2	°C/W

Note * : Package limited.

Note a : Surface Mounted on 1in^2 pad area, t ≤ 10sec.

Note b : Maximum under Steady State conditions is 75 °C/W.

Note c : The power dissipation P_D is based on $T_{J(MAX)}$ = 150°C, and it is useful for reducing junction-to-case thermal resistance ($R_{\theta JC}$) when additional heat sink is used.

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

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

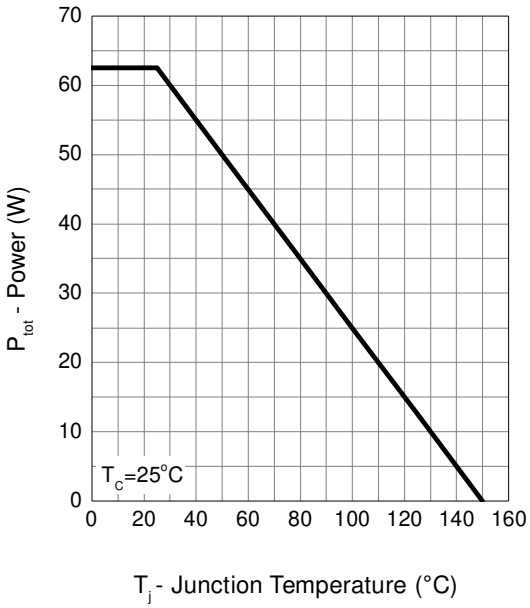
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_{DS}=-250μA	-20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-16V, V_{GS}=0V	-	-	-1	μA
		T_J=85°C	-	-	-30	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_{DS}=-250μA	-0.4	-	-0.9	V
I_{GSS}	Gate Leakage Current	V_{GS}=±12V, V_{DS}=0V	-	-	±100	nA
$R_{DS(ON)}$ [e]	Drain-Source On-state Resistance	V_{GS}=-10V, I_{DS}=-20A	-	3	3.6	mΩ
		V_{GS}=-4.5V, I_{DS}=-20A	-	3.9	4.8	
		V_{GS}=-2.5V, I_{DS}=-20A	-	6.2	9	
Diode Characteristics						
V_{SD} [e]	Diode Forward Voltage	I_{SD}=-1A, V_{GS}=0V	-	-0.5	-1	V
t_{rr} [f]	Reverse Recovery Time	I_{SD}=-20A, dI_{SD}/dt=100A/μs	-	33	-	ns
Q_{rr} [f]	Reverse Recovery Charge		-	17	-	nC
Dynamic Characteristics [f]						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-10V, Frequency=1.0MHz	-	6660	-	pF
C_{oss}	Output Capacitance		-	890	-	
C_{rss}	Reverse Transfer Capacitance		-	940	-	
R_g	Gate Resistance	V_{GS}=0V, V_{DS}=0V,F=1MHz	-	3	-	Ω
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=-10V, R_L=10Ω, I_{DS}=-1A, V_{GEN}=-4.5V, R_G=6Ω	-	19	-	ns
t_r	Turn-on Rise Time		-	25	-	
$t_{d(OFF)}$	Turn-off Delay Time		-	228	-	
t_f	Turn-off Fall Time		-	72	-	
Gate Charge Characteristics [f]						
Q_g	Total Gate Charge	V_{DS}=-10V, V_{GS}=-4.5V, I_{DS}=-20A	-	54	-	nC
Q_{gs}	Gate-Source Charge		-	4.1	-	
Q_{gd}	Gate-Drain Charge		-	17	-	

Note e：Pulse test; pulse width≤300μs, duty cycle≤2%.

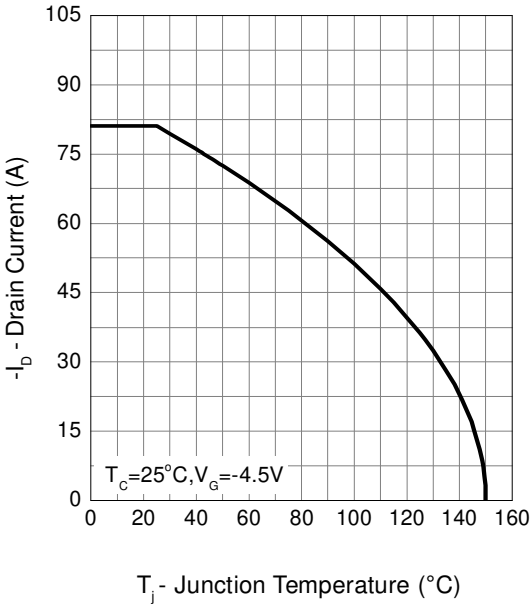
Note f：Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

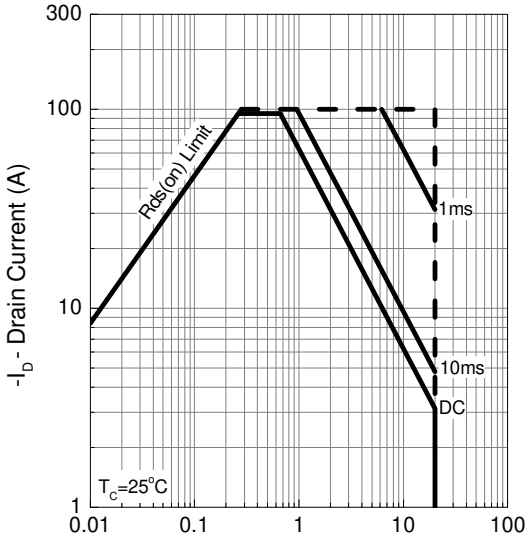
Power Dissipation



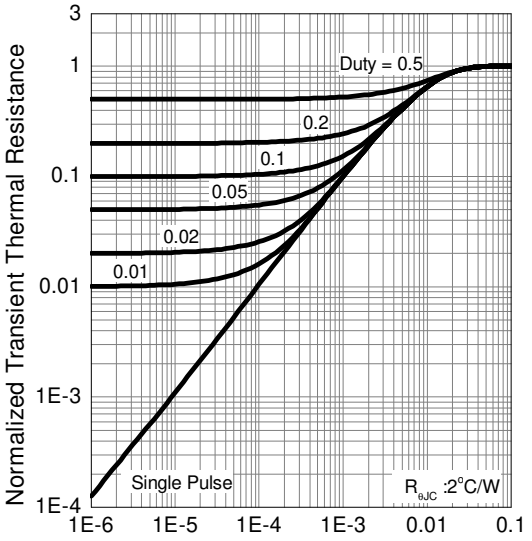
Drain Current



Safe Operation Area

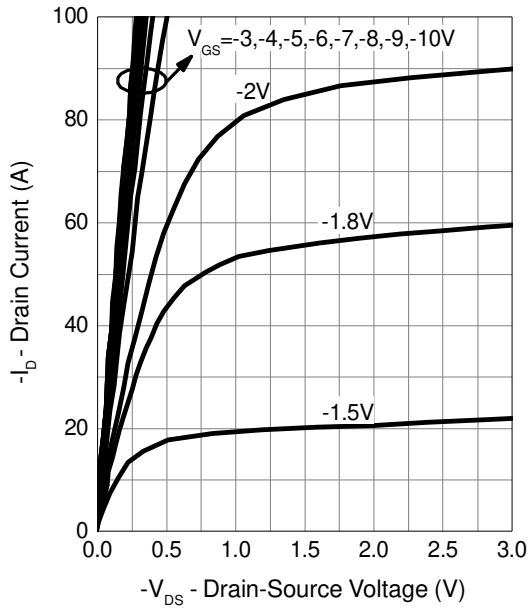


Thermal Transient Impedance

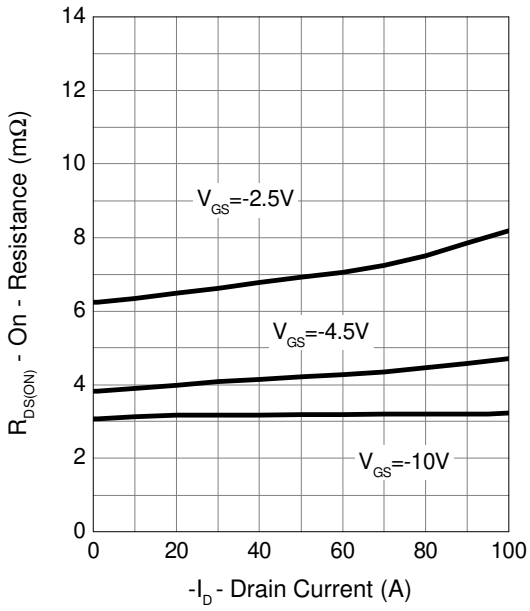


Typical Operating Characteristics (Cont.)

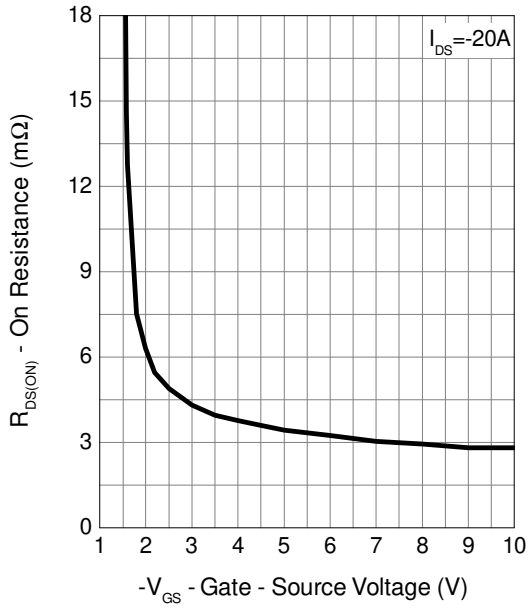
Output Characteristics



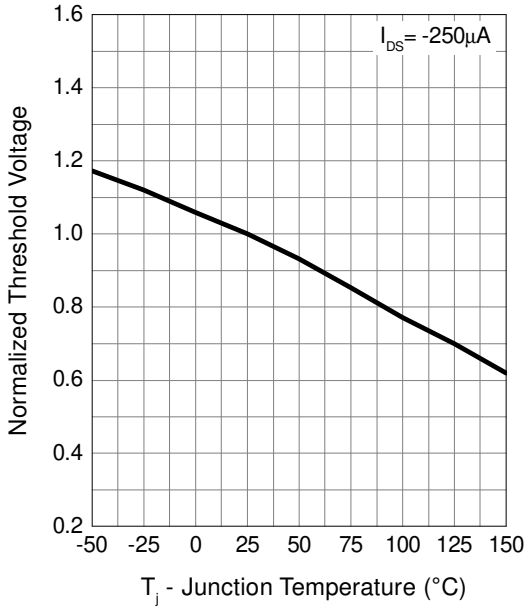
Drain-Source On Resistance



Gate-Source On Resistance

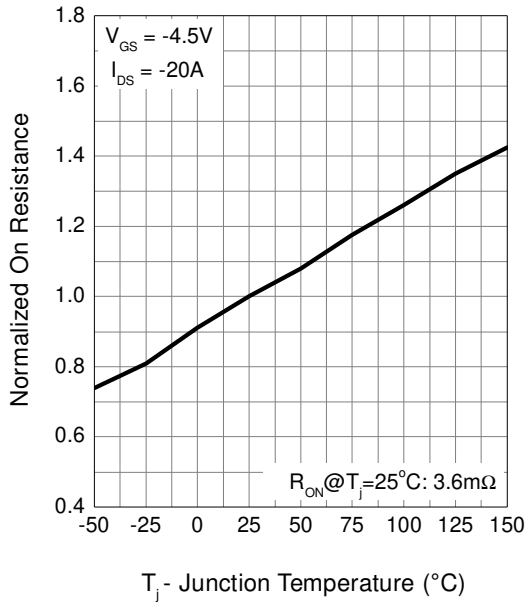


Gate Threshold Voltage

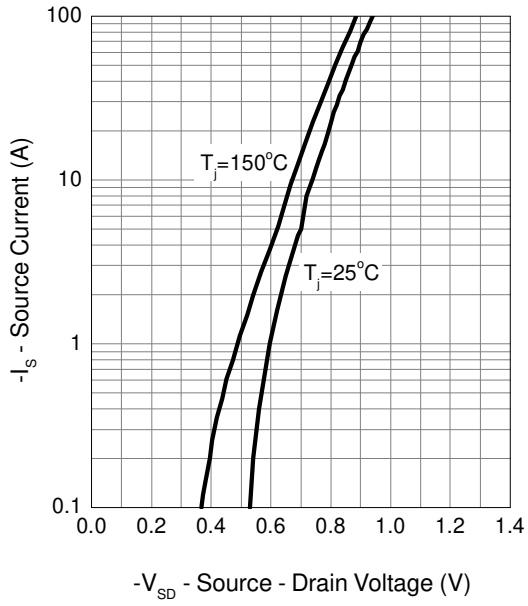


Typical Operating Characteristics (Cont.)

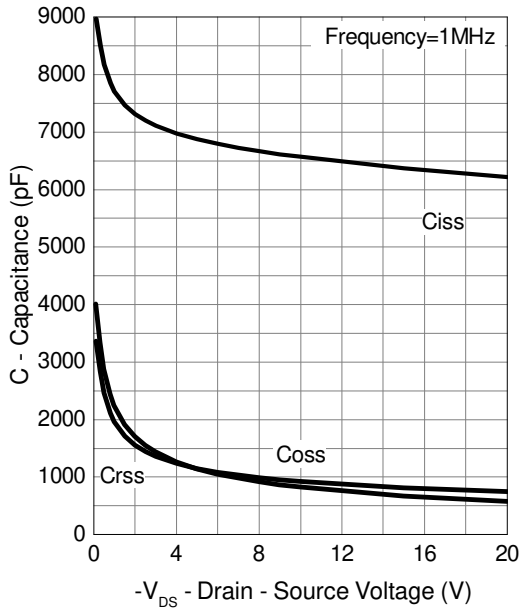
Drain-Source On Resistance



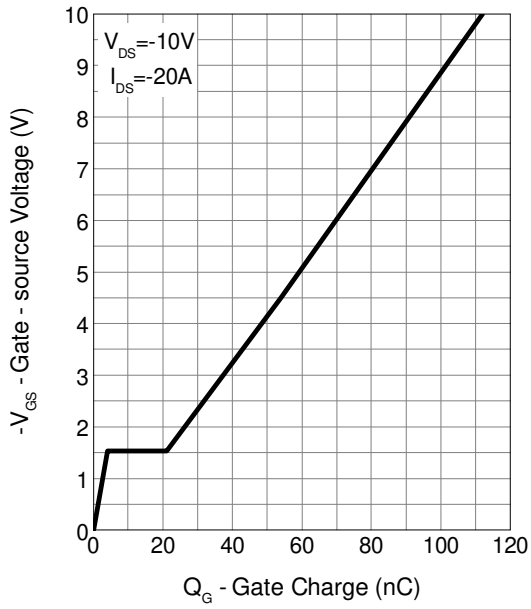
Source-Drain Diode Forward



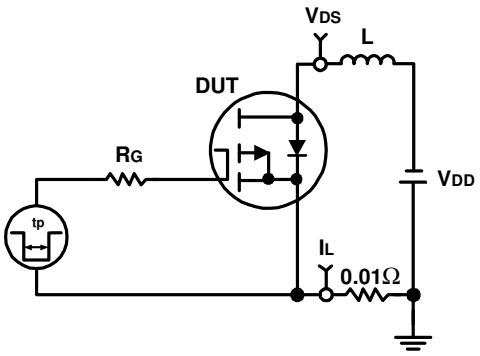
Capacitance

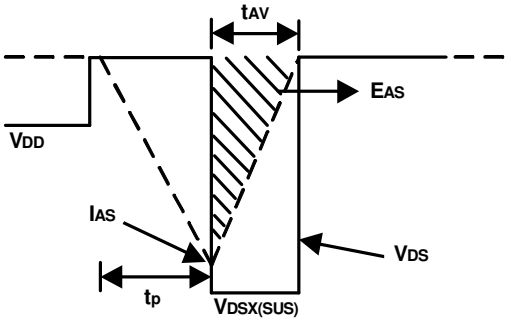


Gate Charge

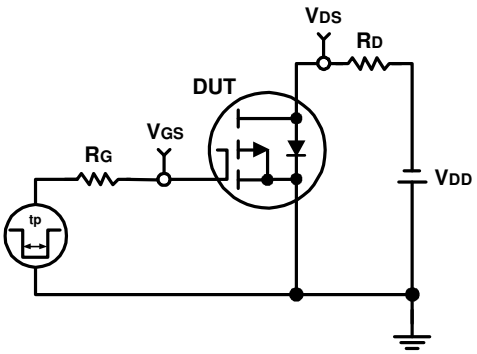


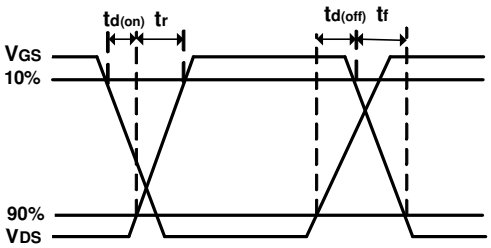
Avalanche Test Circuit and Waveforms





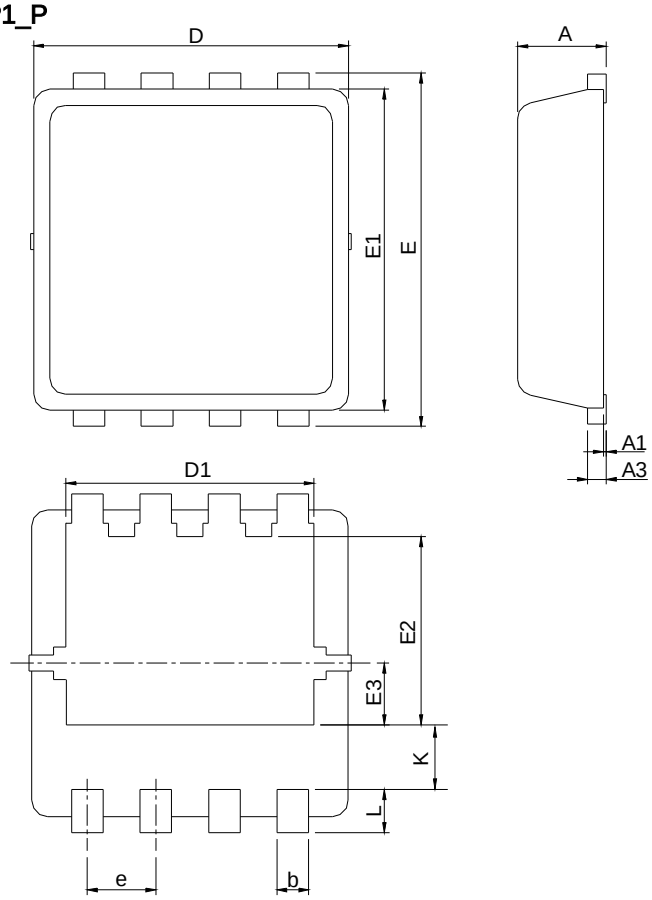
Switching Time Test Circuit and Waveforms





Package Information

DFN3.3x3.3_8L_EP1_P



SYMBOL	DFN3x3-8			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.80	1.00	0.031	0.039
A1	0.00	0.05	0.000	0.002
A3	0.10	0.25	0.004	0.010
b	0.24	0.35	0.009	0.014
D	2.90	3.10	0.114	0.122
D1	2.25	2.45	0.089	0.096
E	3.10	3.30	0.122	0.130
E1	2.90	3.10	0.114	0.122
E2	1.65	1.85	0.065	0.073
E3	0.56	0.58	0.022	0.023
e	0.65 BSC		0.026 BSC	
K	0.475	0.775	0.019	0.031
L	0.30	0.50	0.012	0.020

RECOMMENDED LAND PATTERN