

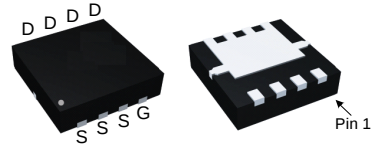
Features

- -30V/-60A,
 $R_{DS(ON)} = 7.4m\Omega(\text{typ.}) @ V_{GS} = -10V$
 $R_{DS(ON)} = 11.5m\Omega(\text{typ.}) @ V_{GS} = -4.5V$
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available
 (RoHS Compliant)

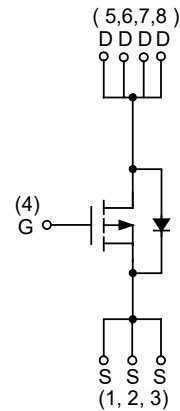
Applications

- Power Management in Desktop Computer or DC/DC Converters.
- Power Load Switch.
- Notebook Battery Management.

Pin Description



DFN3.3x3.3_8L_EP1_P



P-Channel MOSFET

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Symbol	Parameter		Rating	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		-30	V
V _{GSS}	Gate-Source Voltage		±20	
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	-60	A
I _D	Continuous Drain Current	T _C =25°C	-60	
		T _C =100°C	-39	
I _{DM} ^b	Pulsed Drain Current	T _C =25°C	-180	
P _D	Maximum Power Dissipation	T _C =25°C	46	W
		T _C =100°C	18	
R _{θJC}	Thermal Resistance-Junction to Case	Steady State	2.7	°C/W
I _D	Continuous Drain Current	T _A =25°C	-16	A
		T _A =70°C	-12	
P _D ^c	Maximum Power Dissipation	T _A =25°C	3	W
		T _A =70°C	2	
R _{θJA} ^d	Thermal Resistance-Junction to Ambient	t ≤ 10s	40	°C/W
		Steady State	80	
I _{AS} ^e	Avalanche Current, Single pulse	L=0.5mH	-28	A
E _{AS} ^e	Avalanche Energy, Single pulse	L=0.5mH	196	mJ

Note a : Package limited.

Note b : Pulse width limited by max. junction temperature.

Note c : $t \leq 10\text{sec}$.

Note d : $R_{\theta JA}$ steady state $t = 999\text{s}$. $R_{\theta JA}$ is measured with the device mounted on 1in^2 , FR-4 board with 2oz. Copper.

Note e : UIS tested and pulse width are limited by maximum junction temperature 150°C
(initial temperature $T_J = 25^\circ\text{C}$).

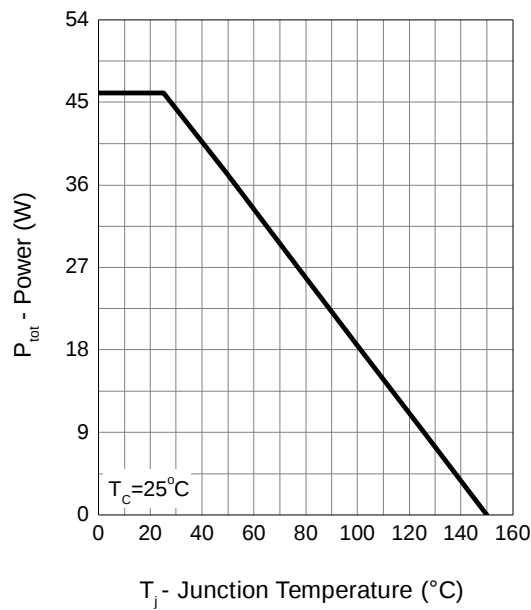
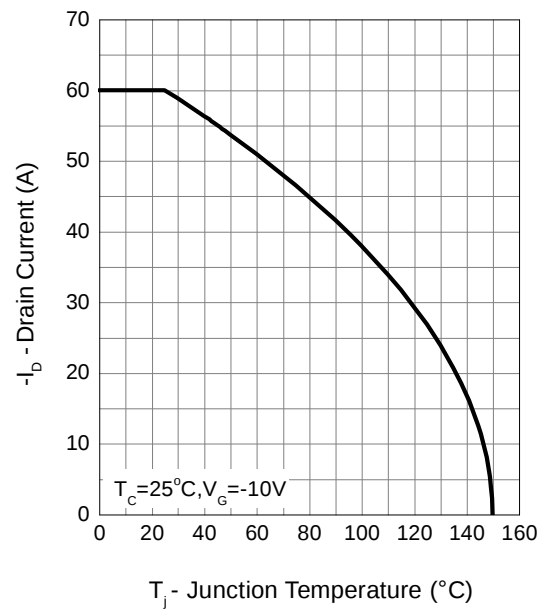
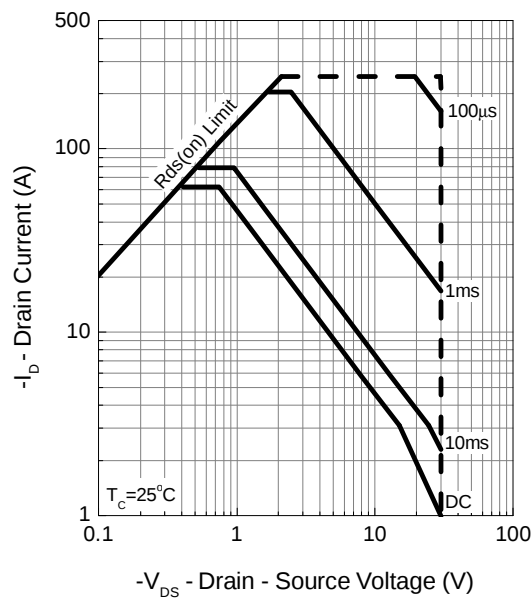
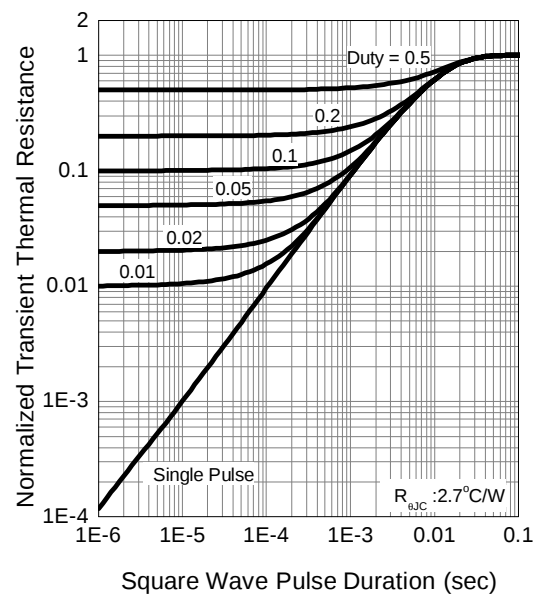
Electrical Characteristics (T_A = 25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =-250μA	-30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-24V, V _{GS} =0V T _J =85°C	-	-	-1 -30	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =-250μA	-1.2	-1.6	-2.0	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±10	μA
R _{DS(ON)} ^f	Drain-Source On-state Resistance	V _{GS} =-10V, I _{DS} =-20A V _{GS} =-4.5V, I _{DS} =-10A	-	7.4 11.5	9.5 14.5	mΩ
Diode Characteristics						
V _{SD} ^f	Diode Forward Voltage	I _{SD} =-1A, V _{GS} =0V	-	-0.7	-1	V
t _{rr} ^g	Reverse Recovery Time	I _{SD} =-20A, dI _{SD} /dt=100A/μS	-	32	-	ns
Q _{rr} ^g	Reverse Recovery Charge		-	17	-	nC
Dynamic Characteristics ^g						
R _g	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	3	6	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-15V, Frequency=1.0MHz	-	2893	3760	pF
C _{oss}	Output Capacitance		-	629	-	
C _{rss}	Reverse Transfer Capacitance		-	513	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =-15V, R _L =15Ω, I _{DS} =-1A, V _{GEN} =-10V, R _G =6Ω	-	15	27	ns
t _r	Turn-on Rise Time		-	13	23	
t _{d(OFF)}	Turn-off Delay Time		-	58	104	
t _f	Turn-off Fall Time		-	23	41	
Gate Charge Characteristics ^g						
Q _g	Total Gate Charge	V _{DS} =-15V, V _{GS} =-4.5V, I _{DS} =-20A	-	32	45	nC
Q _g	Total Gate Charge	V _{DS} =-15V, V _{GS} =-10V, I _{DS} =-20A		62	-	
Q _{gs}	Gate-Source Charge		-	7.2	-	
Q _{gd}	Gate-Drain Charge		-	19	-	

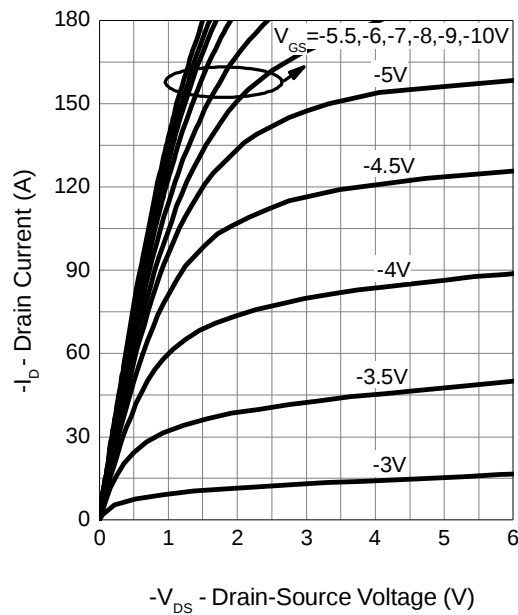
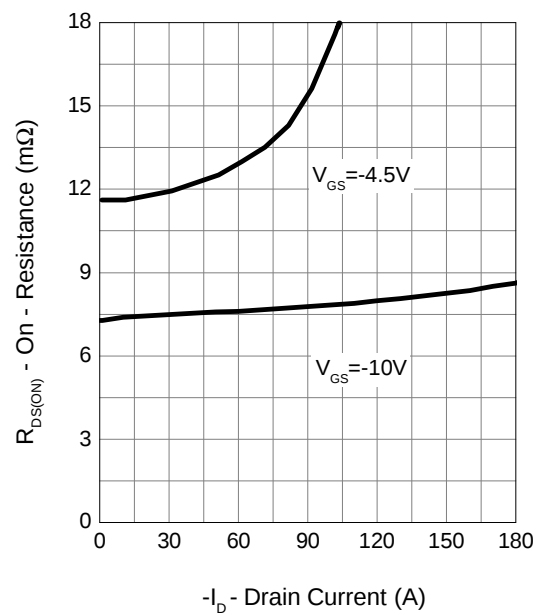
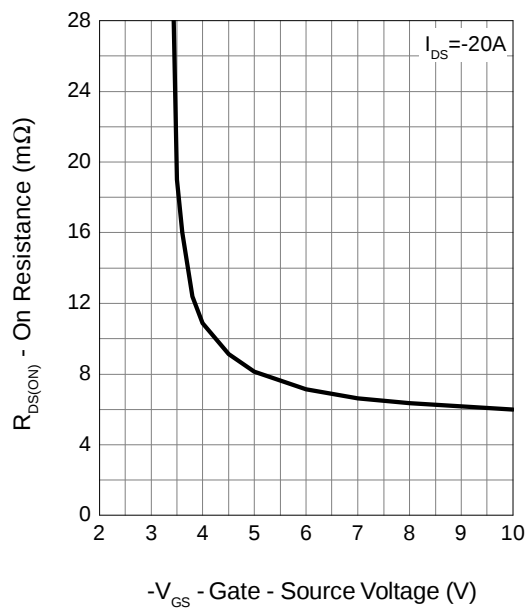
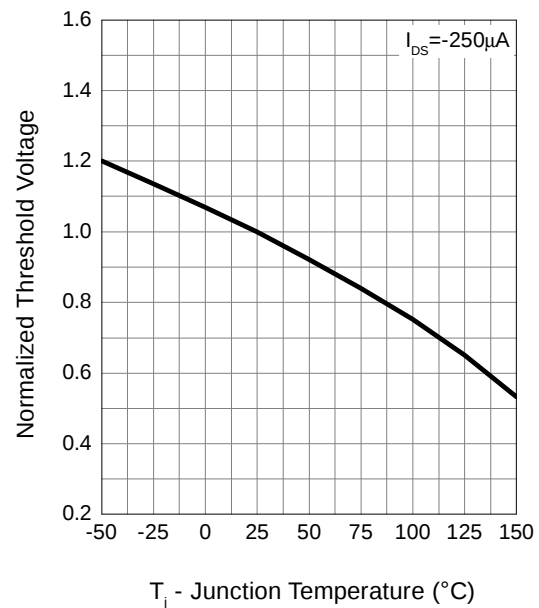
Note f : Pulse test ; pulse width≤300μs, duty cycle≤2%.

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

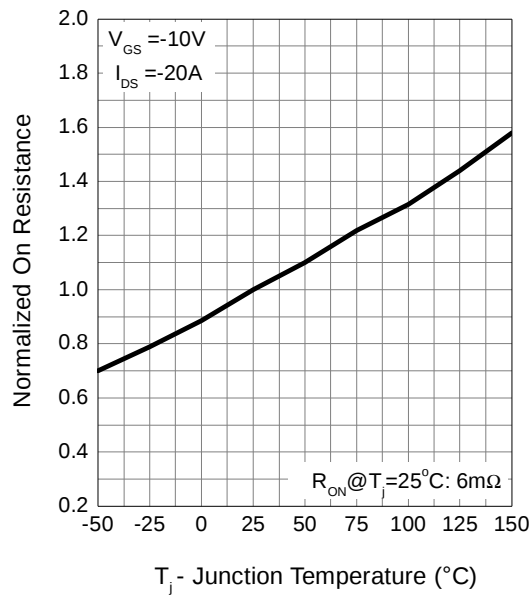
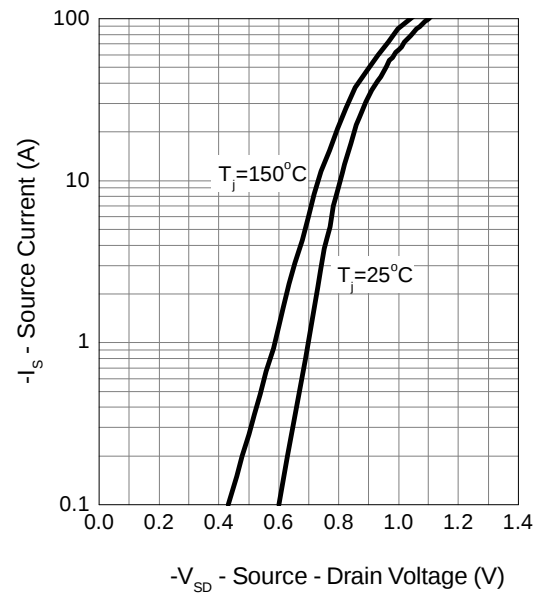
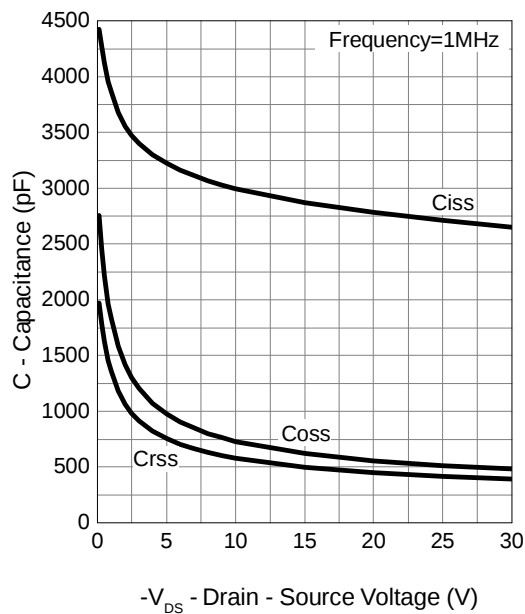
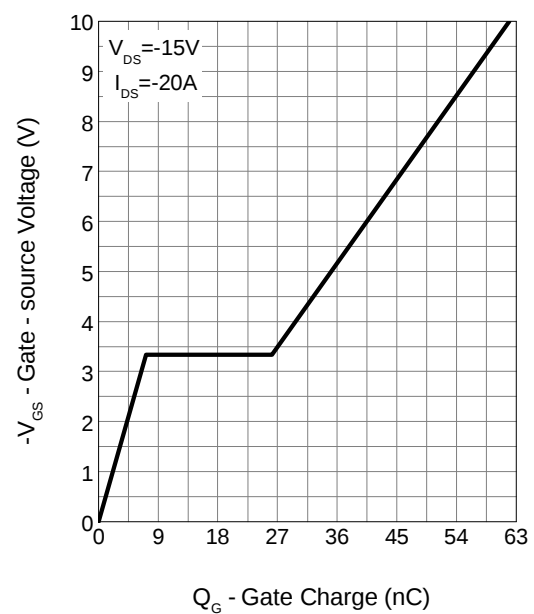
Typical Operating Characteristics

Power Dissipation

Drain Current

Safe Operation Area

Thermal Transient Impedance


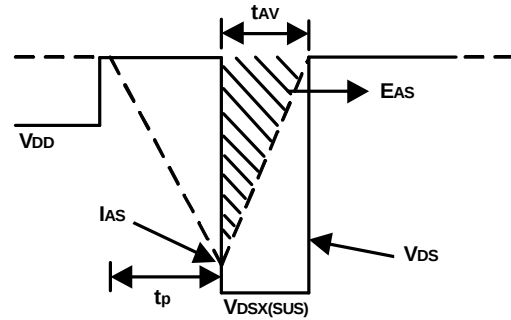
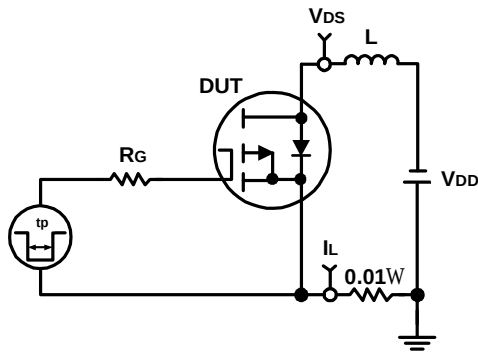
Typical Operating Characteristics (Cont.)

Output Characteristics

Drain-Source On Resistance

Gate-Source On Resistance

Gate Threshold Voltage


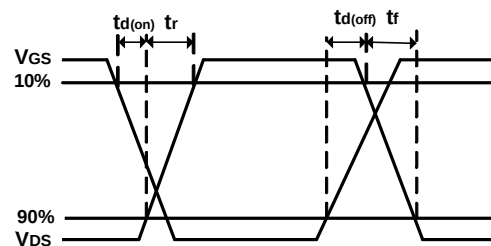
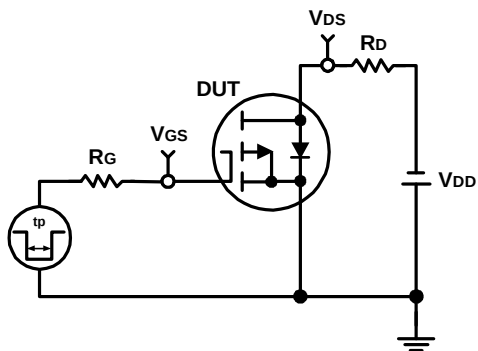
Typical Operating Characteristics (Cont.)

Drain-Source On Resistance

Source-Drain Diode Forward

Capacitance

Gate Charge


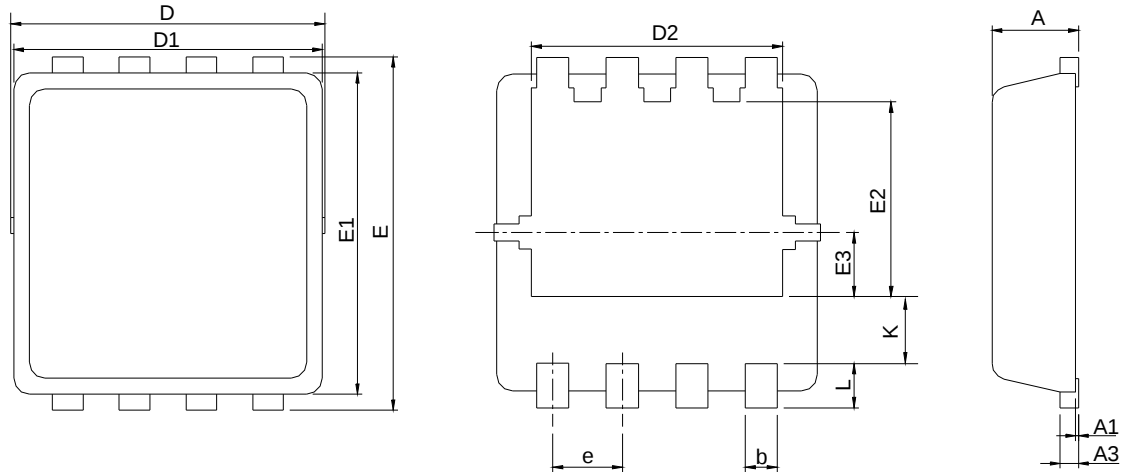
Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms



Package Information

DFN3x3-8


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	3.30	0.114	0.130
D1	2.90	3.10	0.114	0.122
D2	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

