

Features

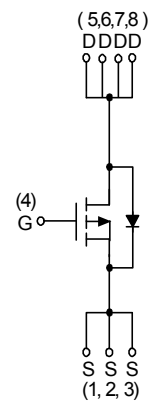
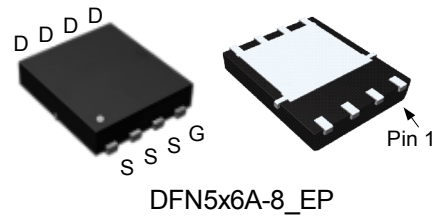
- -30V/-100A,
 $R_{DS(ON)} = 3.5m\Omega(\text{typ.}) @ V_{GS} = -10V$
 $R_{DS(ON)} = 5m\Omega(\text{typ.}) @ V_{GS} = -4.5V$
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available
 (RoHS Compliant)

Note : The diode connected between the gate and source serves only as protection against ESD. No gate overvoltage rating is implied.

Applications

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

Pin Description



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	-100	A
I _D	Continuous Drain Current	T _C =25°C	-100	
		T _C =100°C	-75	
I _{DM}	Pulsed Drain Current	T _C =25°C	-300	
P _D	Maximum Power Dissipation	T _C =25°C	78	W
		T _C =100°C	31	
R _{θJC}	Thermal Resistance-Junction to Case	Steady State	1.6	°C/W
R _{θJA}	Thermal Resistance-Junction to Ambient	t ≤ 10s	20	°C/W
		Steady State	55	
I _{AS} ^c	Avalanche Current, Single pulse	L=0.5mH	-25	A
E _{AS} ^c	Avalanche Energy, Single pulse	L=0.5mH	156	mJ

Note a : Package is limited to 100A.

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

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

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

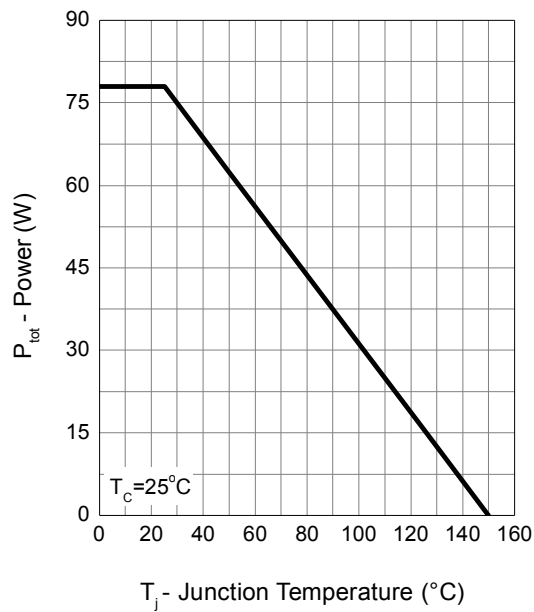
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =-250μA	-30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-24V, V _{GS} =0V T _J =85°C	-	-	-1 -30	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =-250μA	-1.0	-1.8	-2.5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^d	Drain-Source On-state Resistance	V _{GS} =-10V, I _{DS} =-30A V _{GS} =-4.5V, I _{DS} =-10A	-	3.5 5	4.5 6.8	mΩ
Diode Characteristics						
V _{SD} ^d	Diode Forward Voltage	I _{SD} =-1A, V _{GS} =0V	-	-0.7	-1	V
t _{rr} ^e	Reverse Recovery Time	I _{SD} =-30A, dI _{SD} /dt=100A/μs	-	32	-	ns
Q _{rr} ^e	Reverse Recovery Charge		-	16	-	nC
Dynamic Characteristics ^e						
R _g	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	2	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-15V, Frequency=1.0MHz	-	6100	-	pF
C _{oss}	Output Capacitance		-	1130	-	
C _{rss}	Reverse Transfer Capacitance		-	1100	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =-15V, R _L =15Ω, I _{DS} =-1A, V _{GEN} =-10V, R _G =6Ω	-	22	-	ns
t _r	Turn-on Rise Time		-	25	-	
t _{d(OFF)}	Turn-off Delay Time		-	163	-	
t _f	Turn-off Fall Time		-	104	-	
Gate Charge Characteristics ^e						
Q _g	Total Gate Charge	V _{DS} =-15V, V _{GS} =-4.5V, I _{DS} =-30A	-	70	-	nC
Q _g	Total Gate Charge	V _{DS} =-15V, V _{GS} =-10V, I _{DS} =-30A	-	135	-	
Q _{gs}	Gate-Source Charge		-	12	-	
Q _{gd}	Gate-Drain Charge		-	36	-	

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

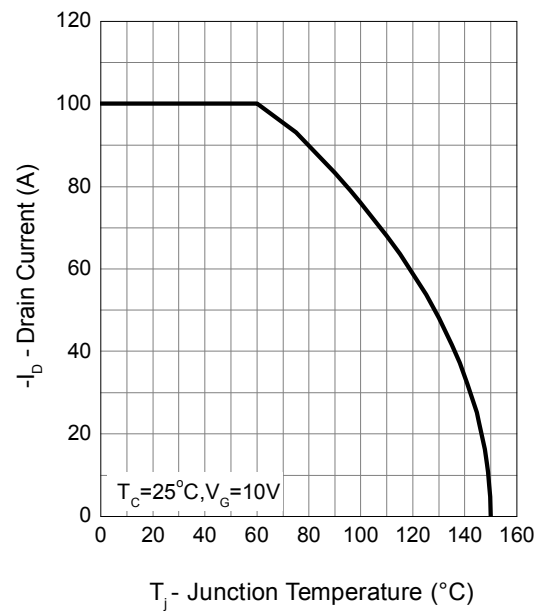
Note e : Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

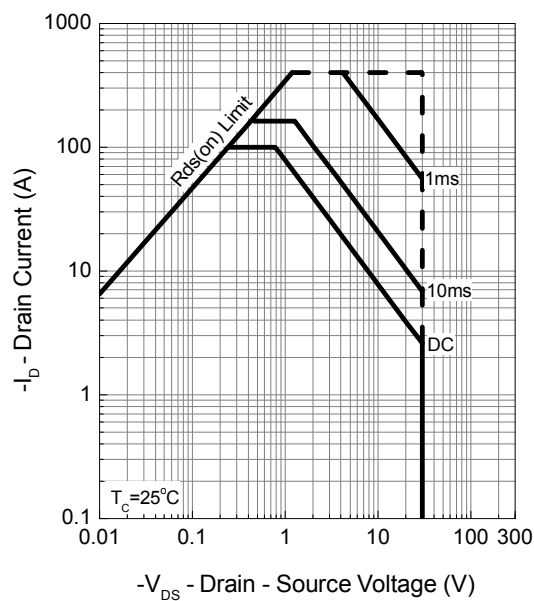
Power Dissipation



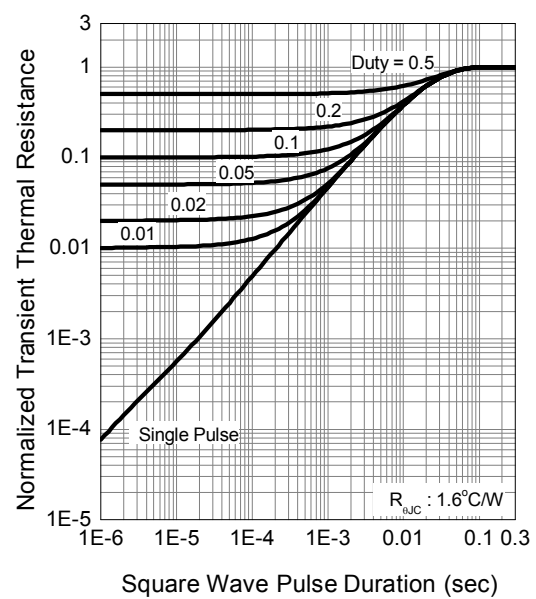
Drain Current



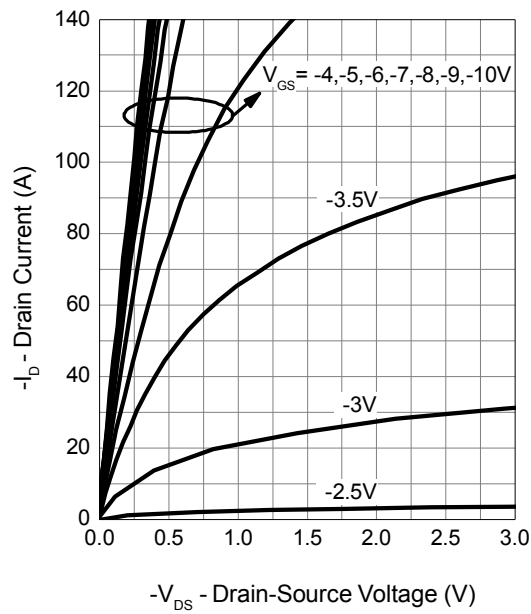
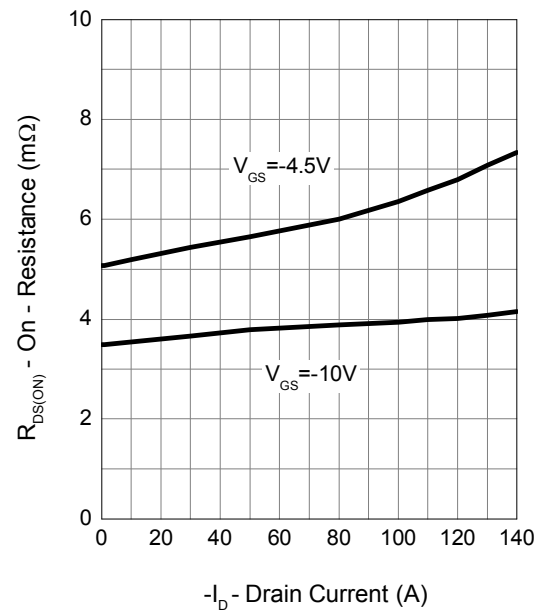
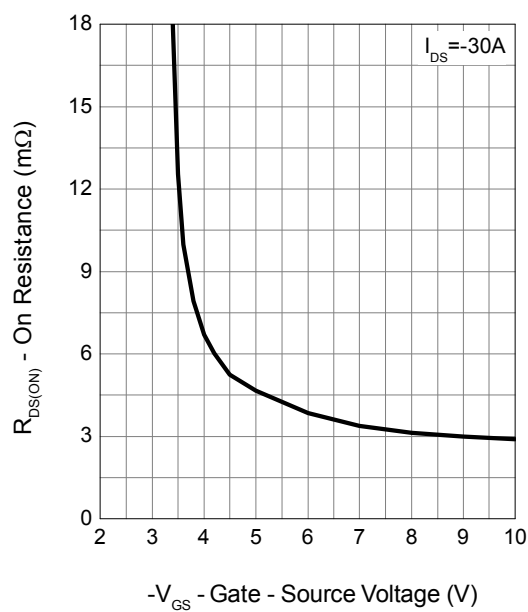
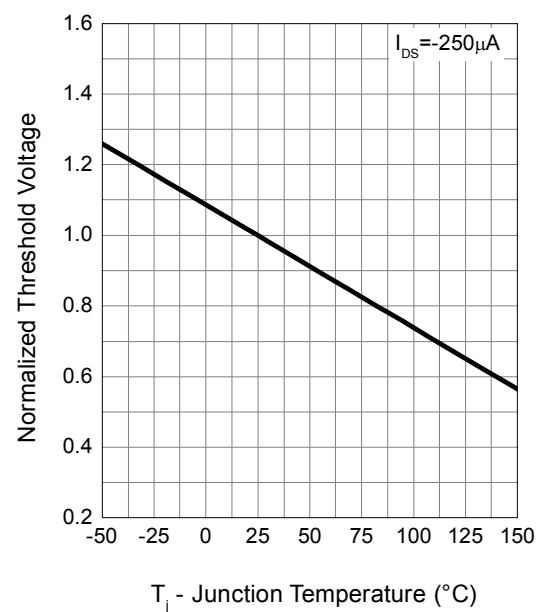
Safe Operation Area



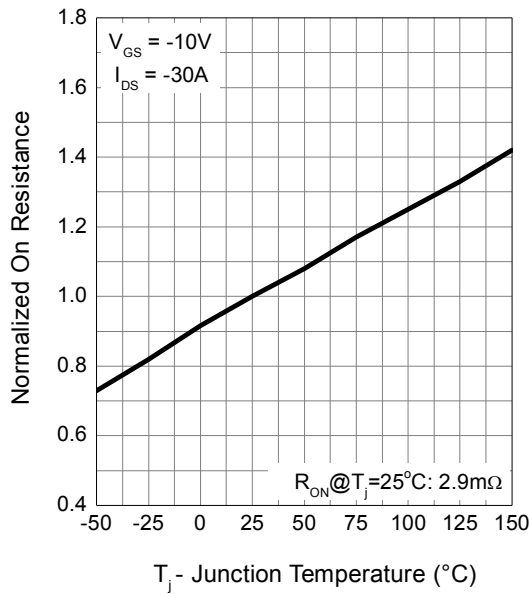
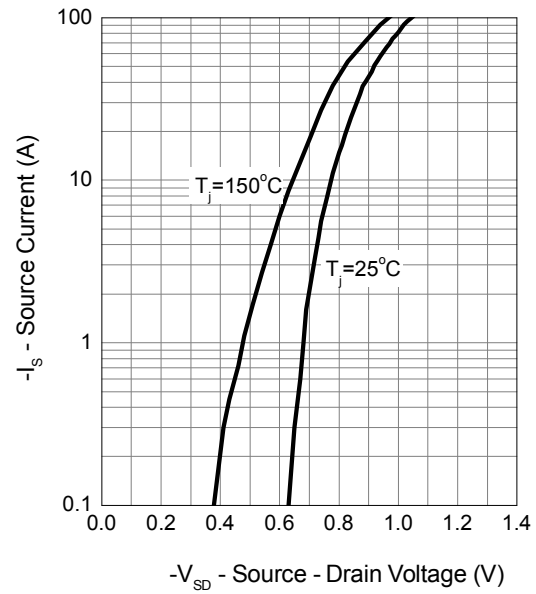
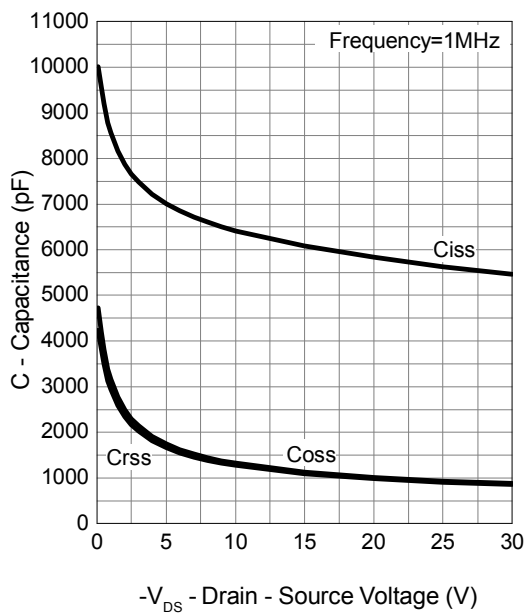
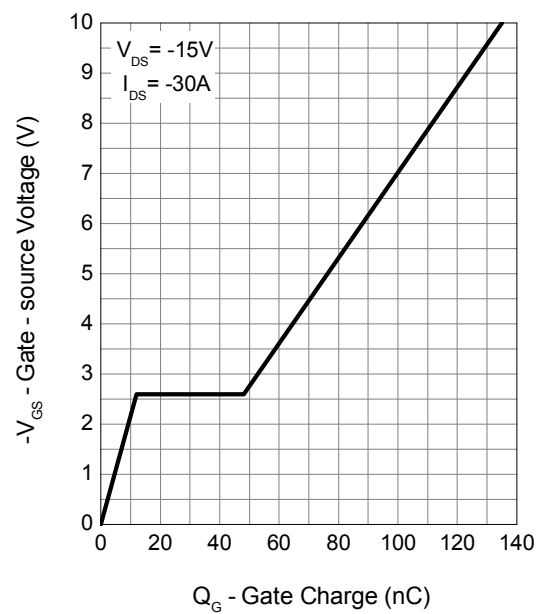
Thermal Transient Impedance



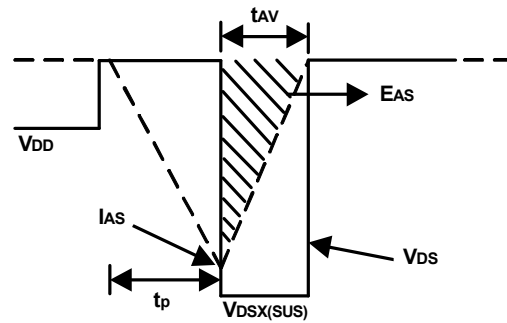
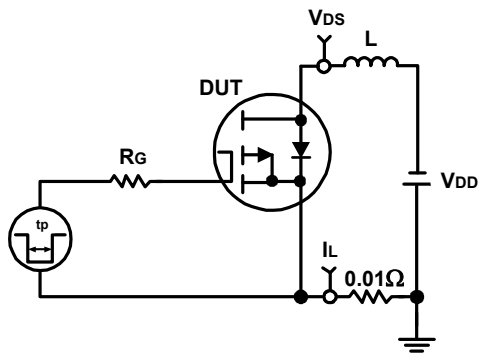
Typical Operating Characteristics (Cont.)

Output Characteristics

Drain-Source On Resistance

Gate-Source On Resistance

Gate Threshold Voltage


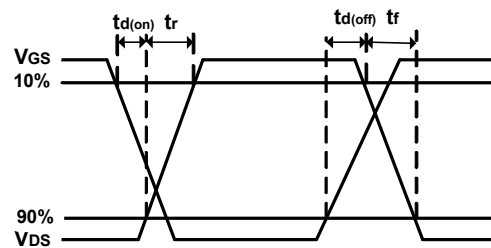
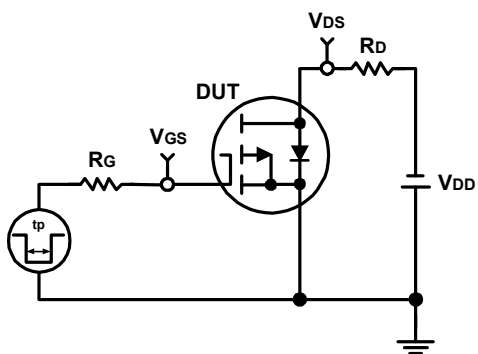
Typical Operating Characteristics (Cont.)

Drain-Source On Resistance

Source-Drain Diode Forward

Capacitance

Gate Charge


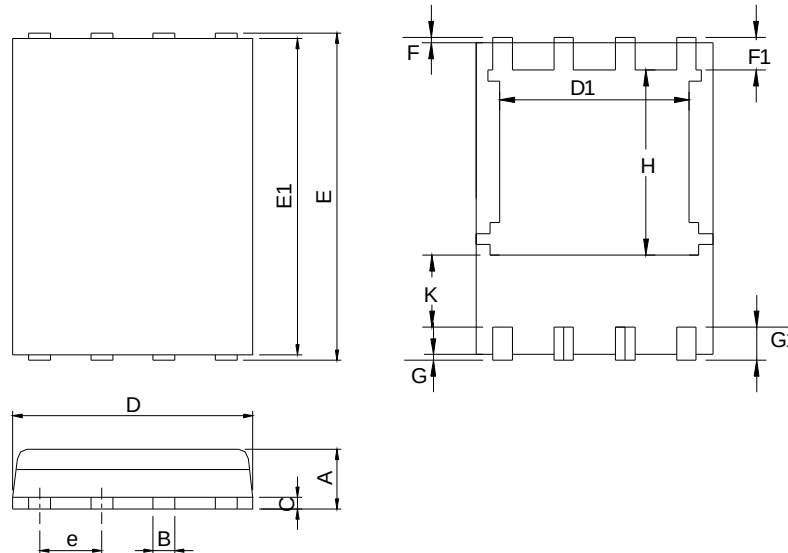
Avalanche Test Circuit and Waveforms



Switching Time Test Circuit and Waveforms

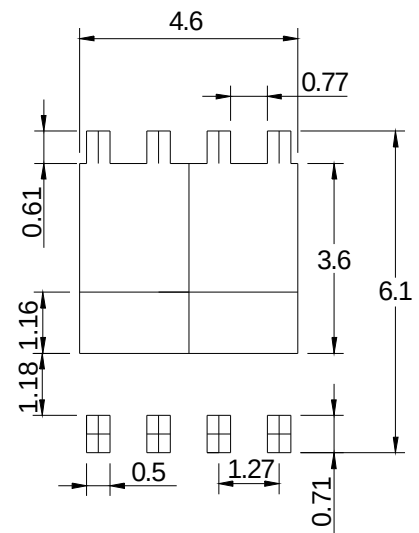


Package Information

DFN5x6-8


SYMBOL	DFN5x6-8			
	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	0.90	1.20	0.035	0.047
B	0.3	0.51	0.012	0.020
C	0.19	0.25	0.007	0.010
D	4.80	5.30	0.189	0.209
D1	4.00	4.40	0.157	0.173
E	5.90	6.20	0.232	0.244
E1	5.50	5.80	0.217	0.228
e	1.27 BSC		0.050 BSC	
F	0.05	0.30	0.002	0.012
F1	0.35	0.75	0.014	0.030
G	0.05	0.30	0.002	0.012
G1	0.35	0.75	0.014	0.030
H	3.34	3.9	0.131	0.154
K	0.762	-	0.03	-

RECOMMENDED LAND PATTERN



UNIT: mm

Note : 1.Dimension D, D1,D2 and E1 do not include mold flash or protrusions.
Mold flash or protrusions shall not exceed 10 mil.