

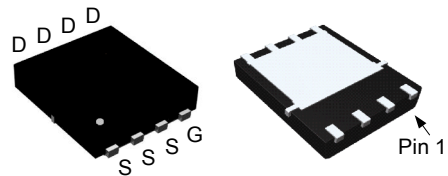
Features

- 150V/5A,
 $R_{DS(ON)} = 125m\Omega(\text{typ.}) @ V_{GS} = 10V$
 $R_{DS(ON)} = 140m\Omega(\text{typ.}) @ V_{GS} = 4.5V$
- Reliable and Rugged
- Lead Free and Green Devices Available
 (RoHS Compliant)

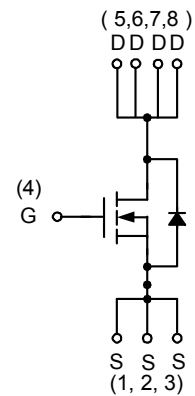
Applications

- Power Management for Boost Converters.
- Synchronous Rectifiers for SMPS.
- LED Backlighting.

Pin Description



DFN5x6-8



N-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		150	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	5	A
I _D	Continuous Drain Current	T _C =25°C	5	A
		T _C =100°C	2	
I _{DM} ^a	Pulsed Drain Current	T _C =25°C	15	
P _D	Maximum Power Dissipation	T _C =25°C	26	W
		T _C =100°C	10	
R _{θJC}	Thermal Resistance-Junction to Case		4.8	°C/W
I _D	Continuous Drain Current	T _A =25°C	4.3	A
		T _A =70°C	3.5	
P _D	Maximum Power Dissipation	T _A =25°C	5	W
		T _A =70°C	3.2	
R _{θJA} ^c	Thermal Resistance-Junction to Ambient	t ≤ 10s	25	°C/W
		Steady State	60	°C/W
I _{AS} ^b	Avalanche Current, Single pulse	L=0.5mH	6	A
E _{AS} ^b	Avalanche Energy, Single pulse	L=0.5mH	9	mJ

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

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

Note c : Surface Mounted on 1in^2 pad area.

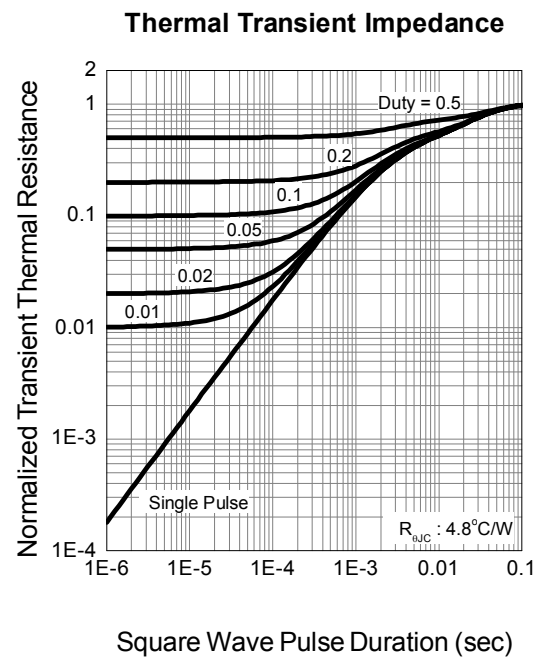
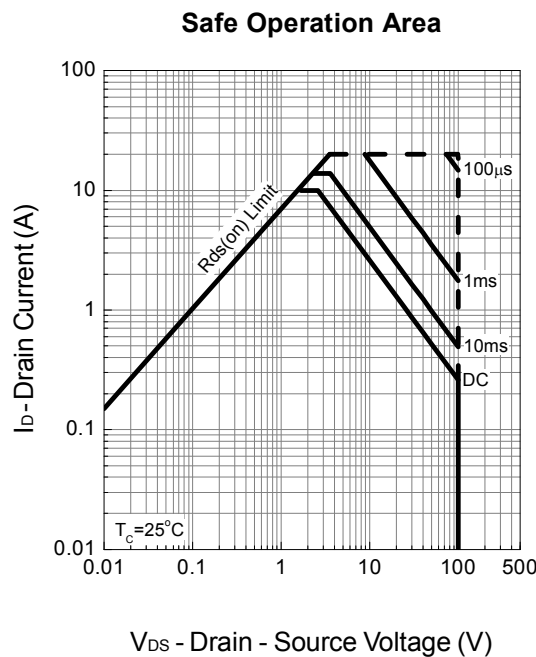
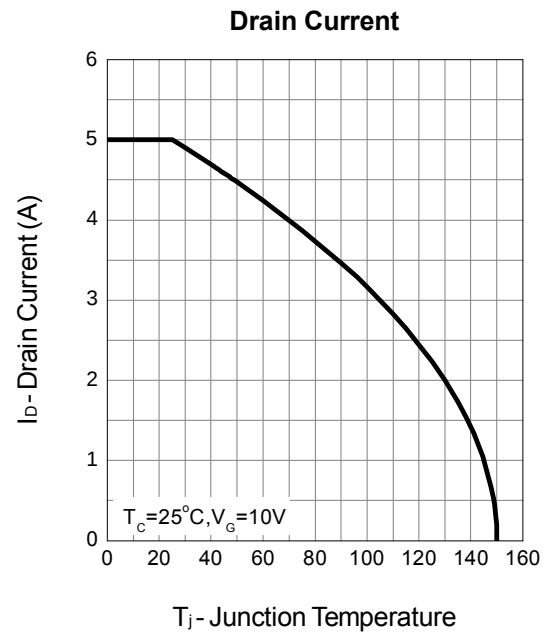
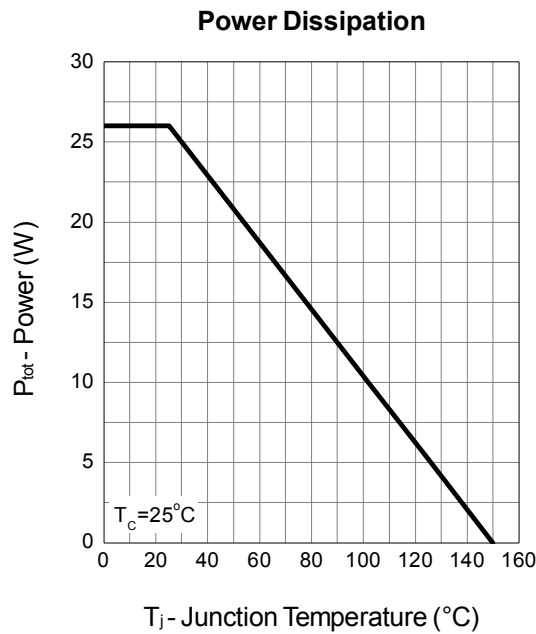
Electrical Characteristics (T_A = 25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	150	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =120V, V _{GS} =0V	-	-	1	μA
		T _J =85°C	-	-	30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	1	2	3	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} =5A	-	125	140	mΩ
		V _{GS} =4.5V, I _{DS} =4A	-	140	160	mΩ
Diode Characteristics						
V _{SD} ^d	Diode Forward Voltage	I _{SD} =5A, V _{GS} =0V	-	0.8	1.3	V
t _{rr}	Reverse Recovery Time	I _{SD} =5A, dI _{SD} /dt=100A/μs	-	27	-	ns
Q _{rr}	Reverse Recovery Charge		-	38	-	nC
Dynamic Characteristics ^e						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, f=1MHz	-	2.5	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =30V, Frequency=1.0MHz	-	585	760	pF
C _{oss}	Output Capacitance		-	36	-	
C _{rss}	Reverse Transfer Capacitance		-	20	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =30V, R _L =30Ω, I _{DS} =1A, V _{GEN} =10V, R _G =6Ω	-	10	18	ns
t _r	Turn-on Rise Time		-	7	13	
t _{d(OFF)}	Turn-off Delay Time		-	22	40	
t _f	Turn-off Fall Time		-	4	7	
Gate Charge Characteristics ^e						
Q _g	Total Gate Charge	V _{DS} =30V, V _{GS} =4.5V, I _{DS} =5A	-	6.1	-	nC
Q _g	Total Gate Charge	V _{DS} =30V, V _{GS} =10V, I _{DS} =5A	-	13	19	
Q _{gs}	Gate-Source Charge		-	2.4	-	
Q _{gd}	Gate-Drain Charge		-	2.4	-	

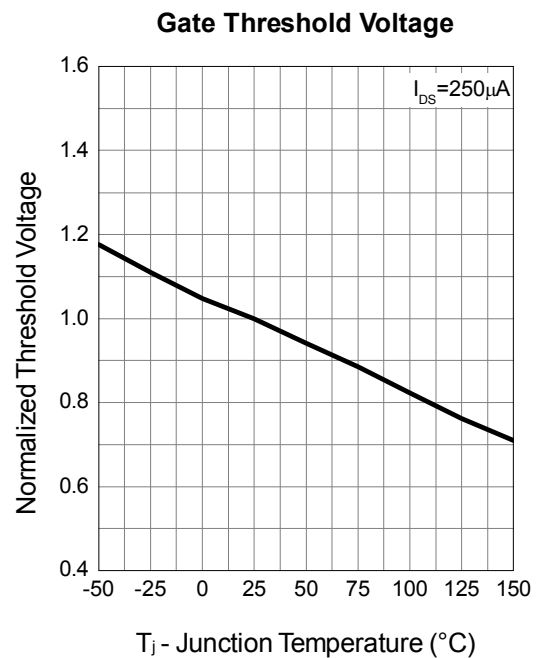
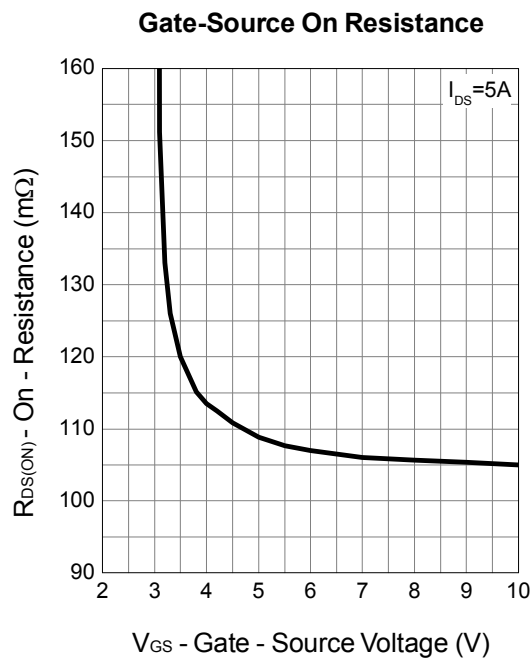
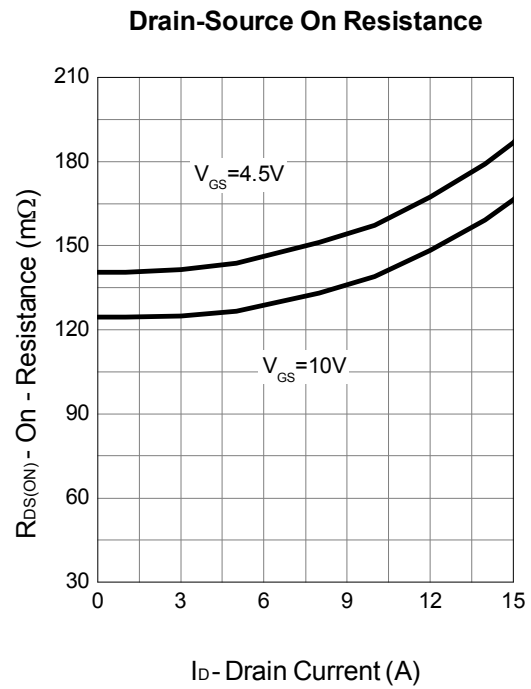
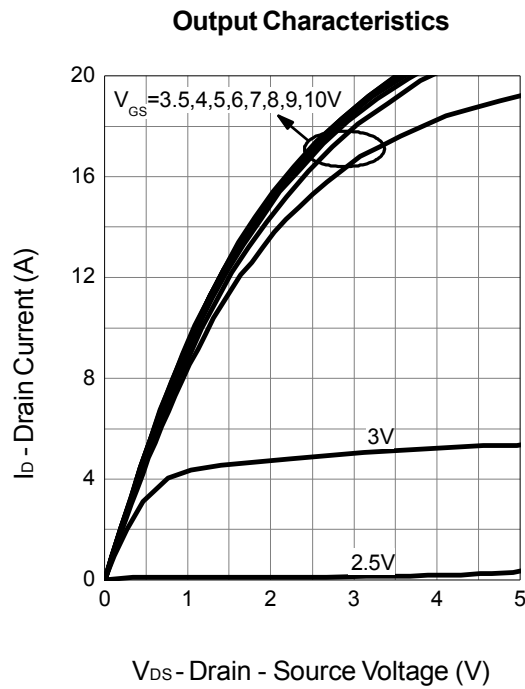
Note d : Pulse test ; pulse width≤300μs, duty cycle≤2%.

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

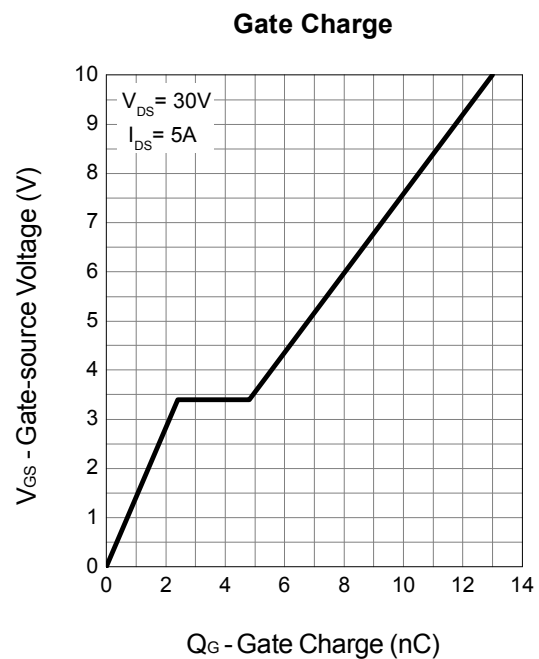
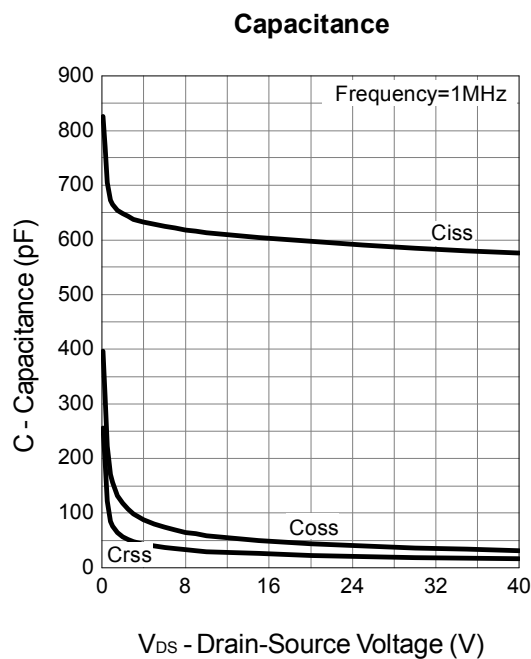
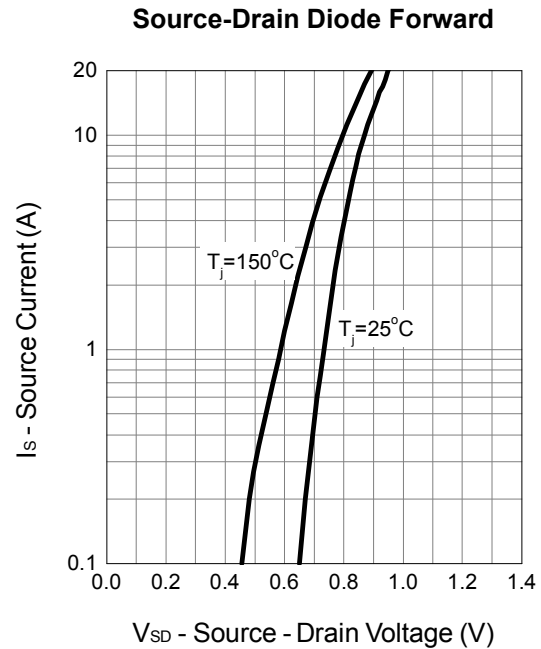
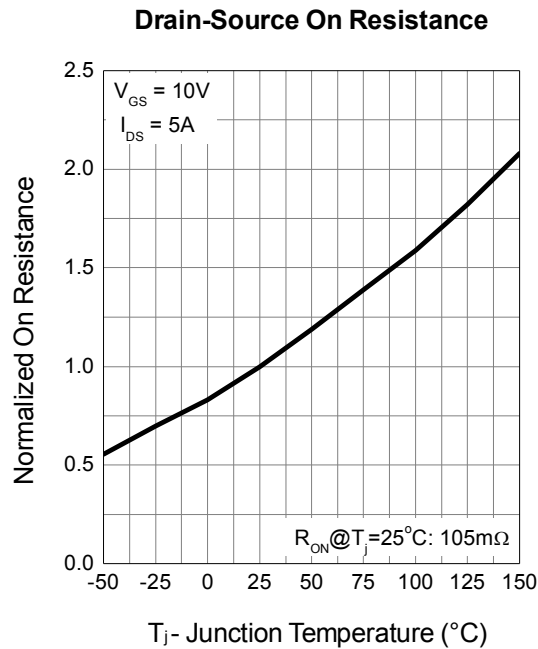
Typical Operating Characteristics



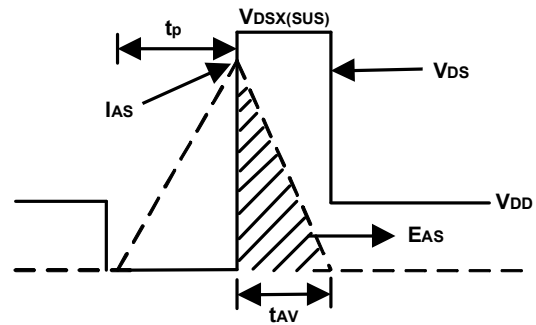
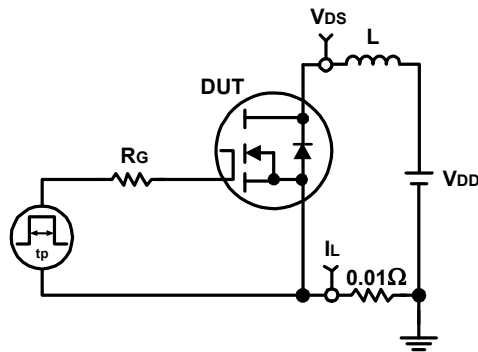
Typical Operating Characteristics (Cont.)



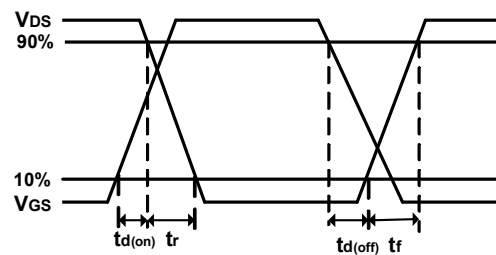
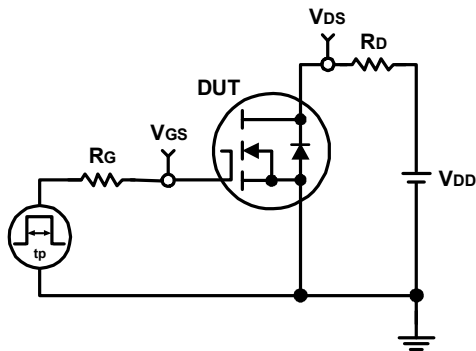
Typical Operating Characteristics (Cont.)



Avalanche Test Circuit and Waveforms

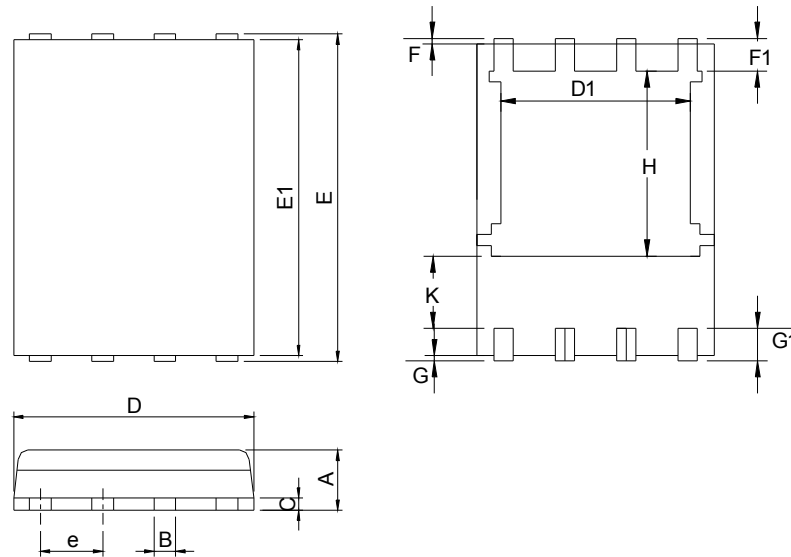


Switching Time Test Circuit and Waveforms



Package Information

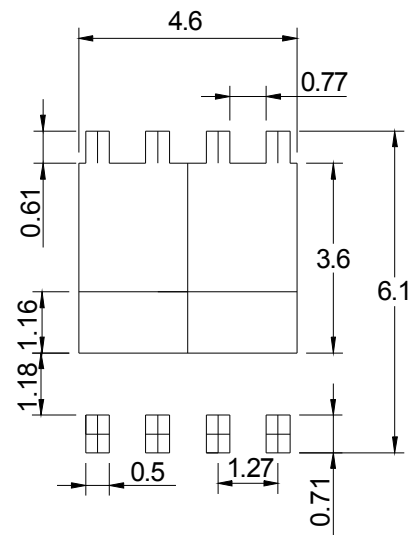
DFN5x6-8



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	-

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

RECOMMENDED LAND PATTERN



UNIT: mm