

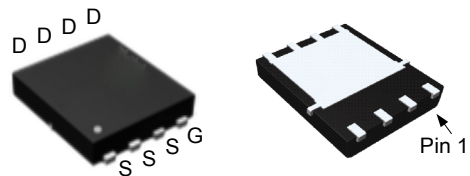
Features

- -60V/-30A,
 $R_{DS(ON)} = 24m\Omega(\text{typ.}) @ V_{GS} = -10V$
 $R_{DS(ON)} = 30m\Omega(\text{typ.}) @ V_{GS} = -4.5V$
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available
 (RoHS Compliant)

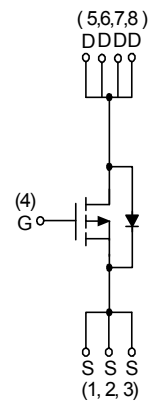
Applications

- Power Management for Industrial DC / DC Converters.

Pin Description



DFN5x6A-8_EP



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		-60	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	-30	A
I _D	Continuous Drain Current	T _C =25°C	-30	
		T _C =100°C	-22.5	
I _{DM}	Pulsed Drain Current	T _C =25°C	-90	
P _D	Maximum Power Dissipation	T _C =25°C	96	W
		T _C =100°C	38	
R _{θJC}	Thermal Resistance-Junction to Case	Steady State	1.3	°C/W
R _{θJA} ^b	Thermal Resistance-Junction to Ambient	Steady State	60	°C/W
I _{AS} ^c	Avalanche Current, Single pulse	L=0.5mH	-27	A
E _{AS} ^c	Avalanche Energy, Single pulse	L=0.5mH	182	mJ

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

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

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

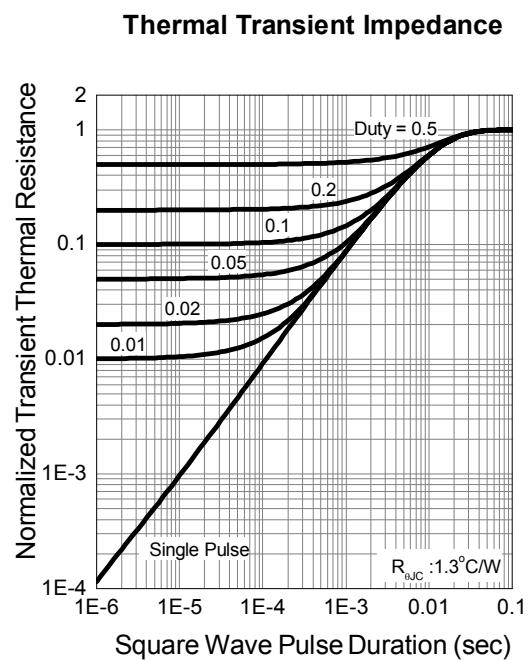
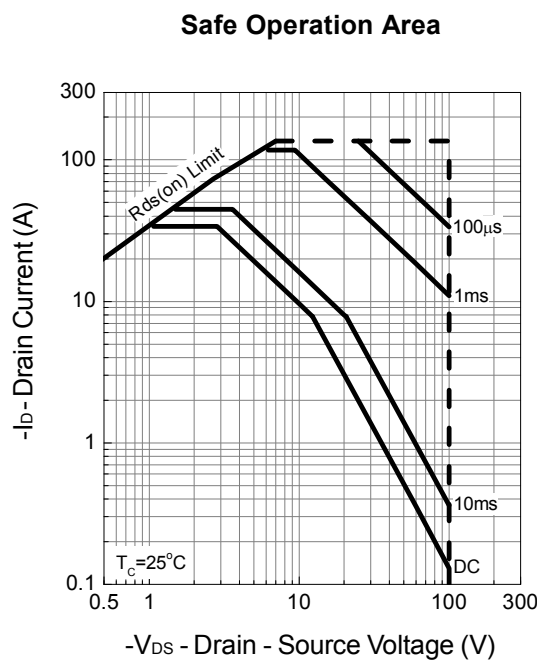
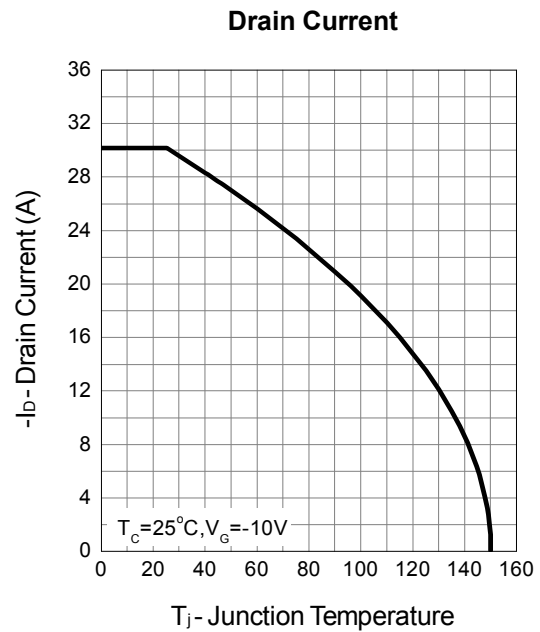
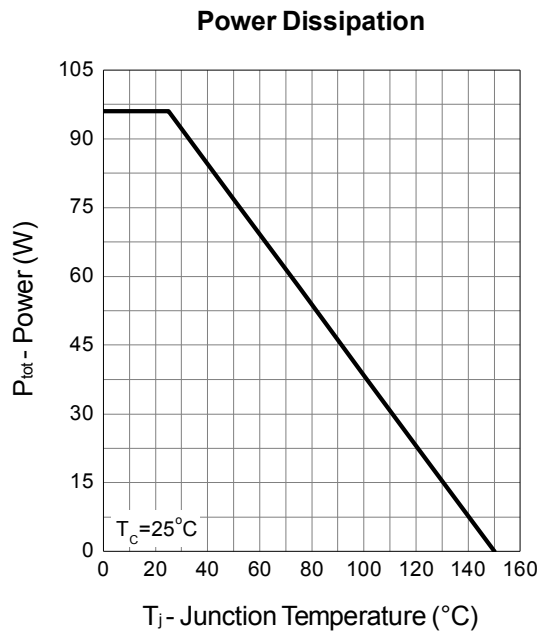
Electrical Characteristics (T_A = 25°C Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =-250μA	-60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-48V, 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	-2.5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±25V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^d	Drain-Source On-state Resistance	V _{GS} =-10V, I _{DS} =-18A	-	24	30	mΩ
		V _{GS} =-4.5V, I _{DS} =-10A	-	30	40	mΩ
Diode Characteristics						
V _{SD} ^d	Diode Forward Voltage	I _{SD} =-18A, V _{GS} =0V	-	-0.8	-1.1	V
t _{rr}	Reverse Recovery Time	I _{SD} =-18A, dI _{SD} /dt=100A/μs	-	46	-	ns
Q _{rr}	Reverse Recovery Charge		-	103	-	nC
Dynamic Characteristics ^e						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, f=1MHz	-	3.4	6.8	Ω
C _{iSS}	Input Capacitance	V _{GS} =0V, V _{DS} =-30V, Frequency=1.0MHz	-	4167	5207	pF
C _{oSS}	Output Capacitance		-	138	-	
C _{rSS}	Reverse Transfer Capacitance		-	103	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =-30V, R _L =30Ω, I _{DS} =-1A, V _{GEN} =-10V, R _G =6Ω	-	17	31	ns
t _r	Turn-on Rise Time		-	9	17	
t _{d(OFF)}	Turn-off Delay Time		-	83	150	
t _f	Turn-off Fall Time		-	34	61	
Gate Charge Characteristics ^e						
Q _g	Total Gate Charge	V _{DS} =-50V, V _{GS} =-4.5V, I _{DS} =-18A	-	27	-	nC
Q _g	Total Gate Charge	V _{DS} =-50V, V _{GS} =-10V, I _{DS} =-18A	-	56	78	
Q _{gs}	Gate-Source Charge		-	9.5	-	
Q _{gd}	Gate-Drain Charge		-	14.5	-	

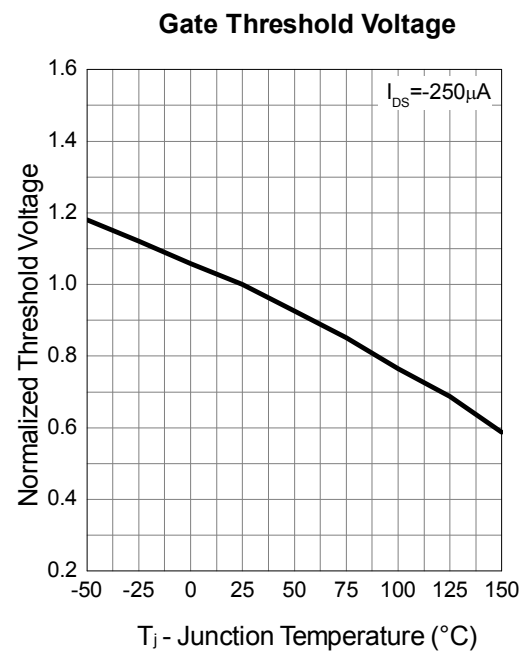
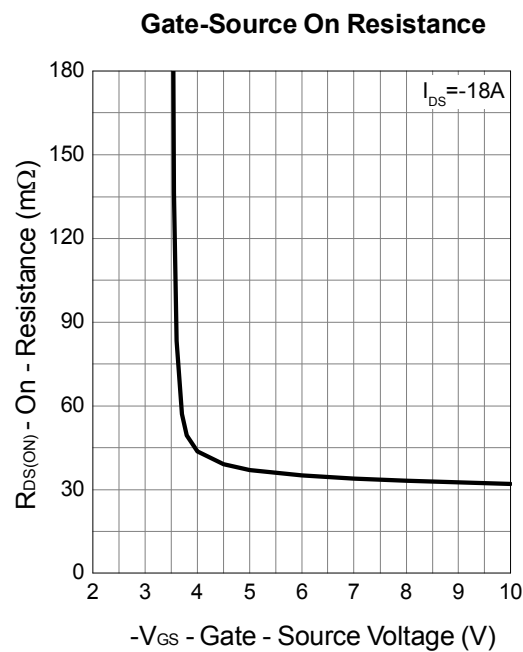
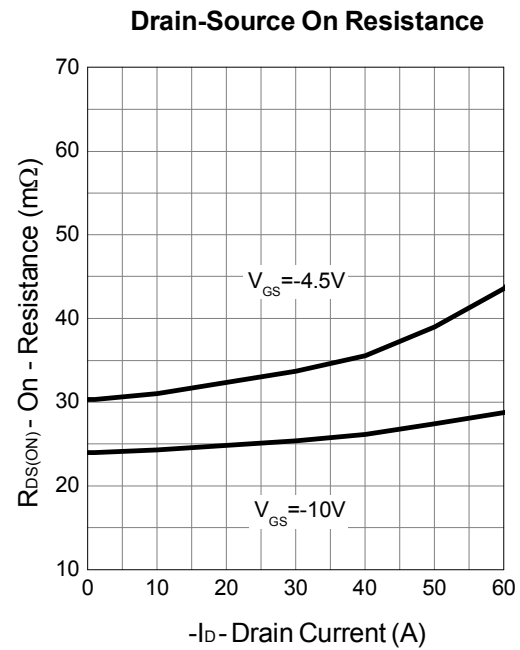
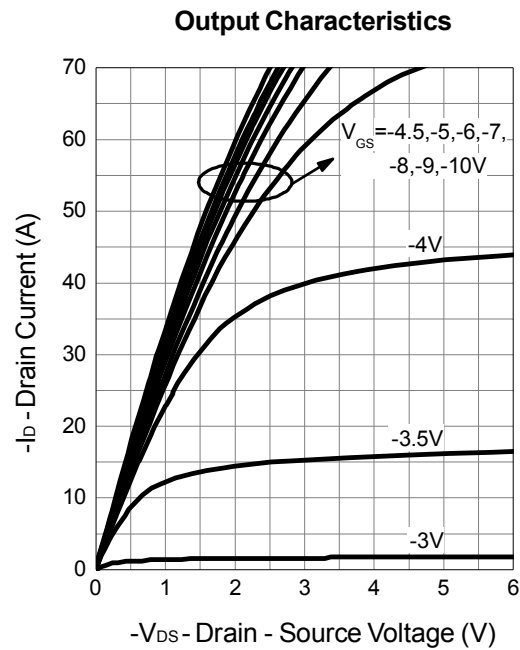
Note d : Pulse test ; pulse width≤300μs, duty cycle≤2%.

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

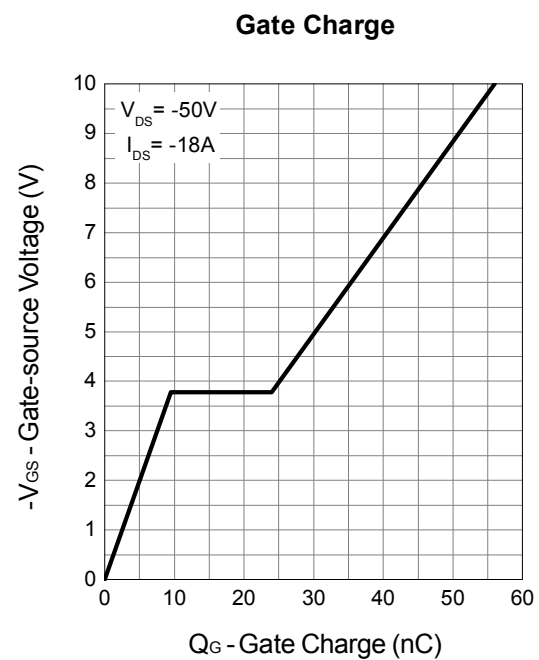
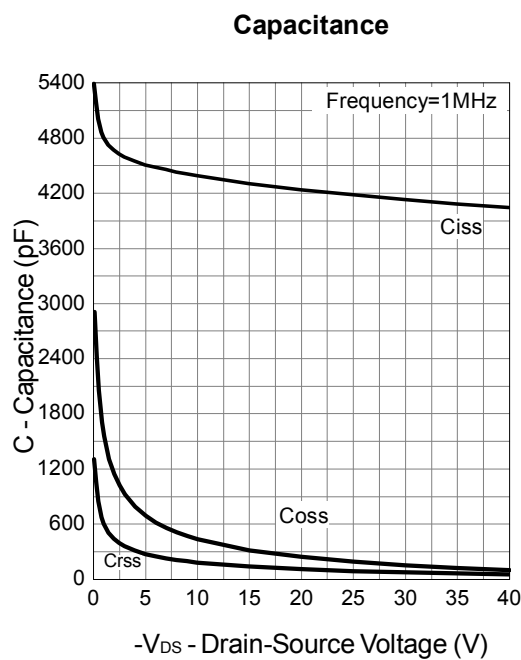
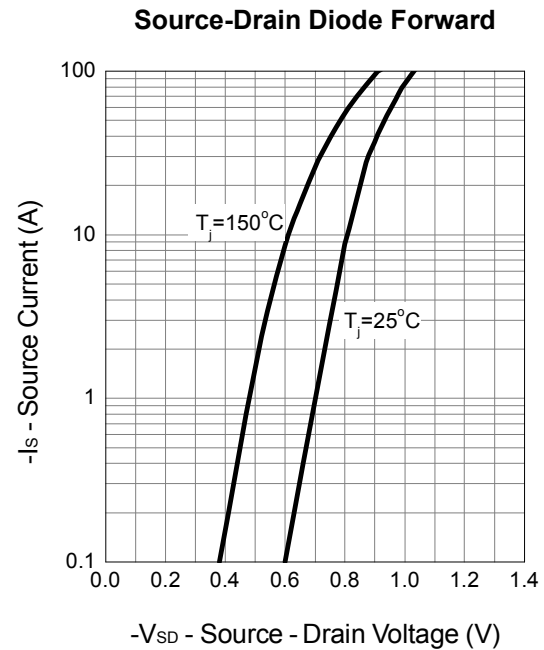
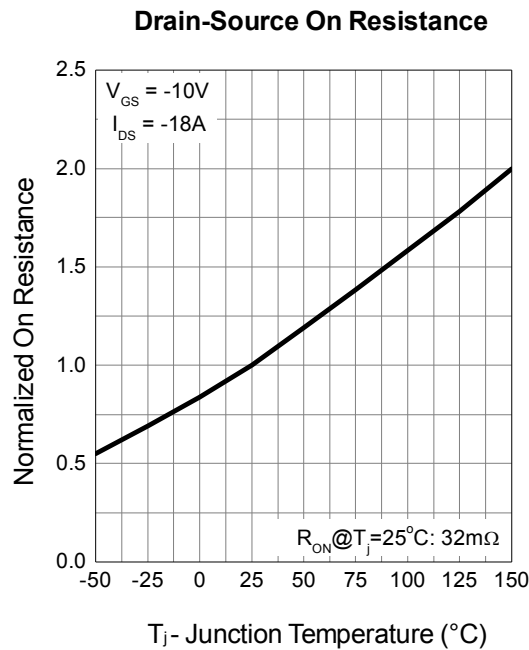
Typical Operating Characteristics



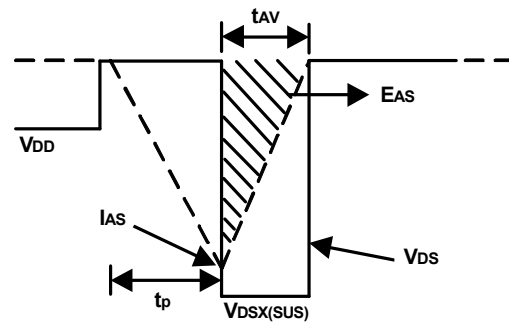
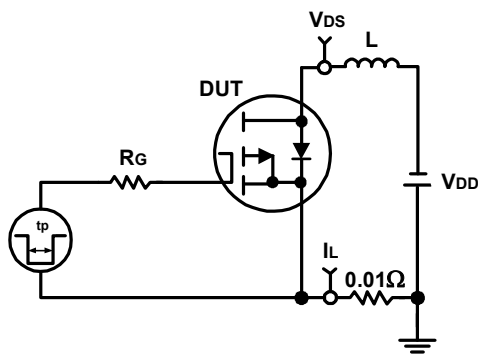
Typical Operating Characteristics (Cont.)



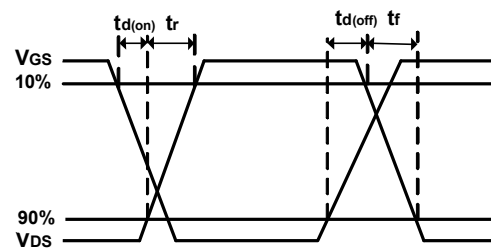
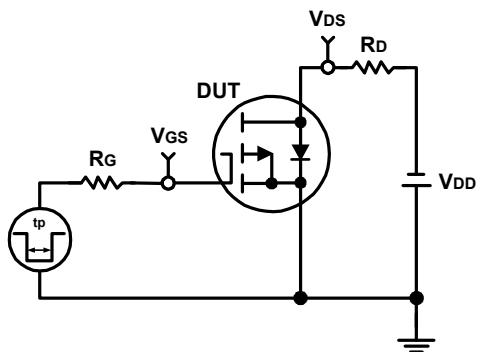
Typical Operating Characteristics (Cont.)



Avalanche Test Circuit and Waveforms

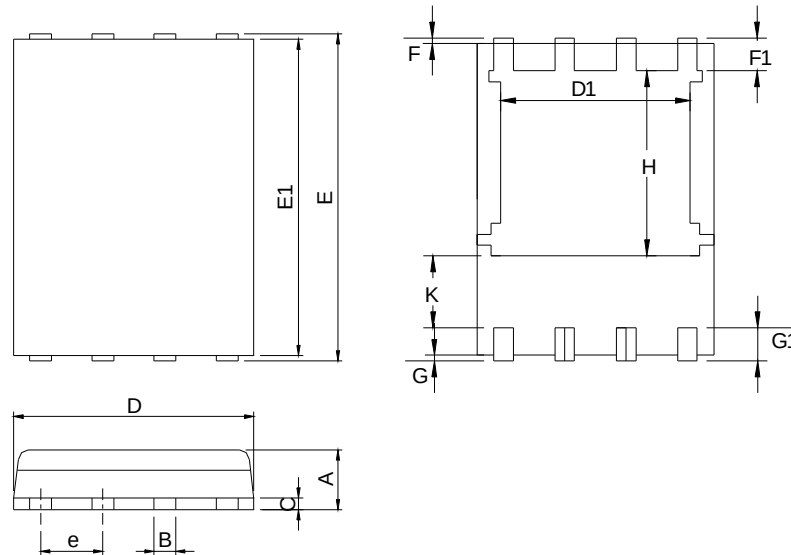


Switching Time Test Circuit and Waveforms



Package Information

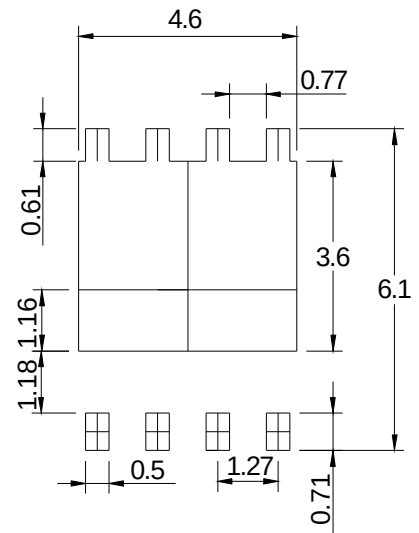
DFN5x6-8



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