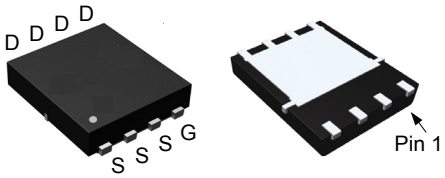
Features

- -20V/-100A
  $R_{DS(ON)}$=4.5mΩ(typ.)@V_{GS}=-4.5V
  $R_{DS(ON)}$=5.5mΩ(typ.)@V_{GS}=-2.5V
  $R_{DS(ON)}$=6.8mΩ(typ.)@V_{GS}=-1.8V
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

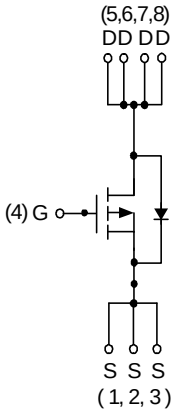
Applications

- Portable Equipment applications
- For E-cigarette battery protection application
- Load switch

Pin Description



DFN5x6A-8_EP



P-Channel MOSFET

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

Symbol	Parameter		Rating	Unit
Common Ratings				
V_{DSS}	Drain-Source Voltage		-20	V
V_{GSS}	Gate-Source Voltage		±12	
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	-36	A
I_D	Continuous Drain Current	T_C=25°C	-100	A
		T_C=100°C	-46	
I_{DM} [a]	Pulsed Drain Current	T_C=25°C	-292	
P_D	Maximum Power Dissipation	T_C=25°C	40	W
		T_C=100°C	16	
$R_{\theta JC}$	Thermal Resistance-Junction to Case	Steady state	3.1	°C/W
I_D	Continuous Drain Current	T_A=25°C	-16.6	A
		T_A=70°C	-13.3	
P_D	Maximum Power Dissipation	T_A=25°C	2.08	W
		T_A=70°C	1.33	
$R_{\theta JA}$ [b]	Thermal Resistance-Junction to Ambient	Steady state	60	°C/W
I_{AS} [c]	Avalanche Current, Single pulse	L=0.5mH	-22	A
E_{AS} [c]	Avalanche Energy, Single pulse	L=0.5mH	121	mJ

Note a：Pulse width limited by max. junction temperature.
Note b：Surface Mounted on 1in^2 pad area.
Note c：UIS tested and pulse width limited by maximum junction temperature 150°C (initial temperature T_j=25°C).

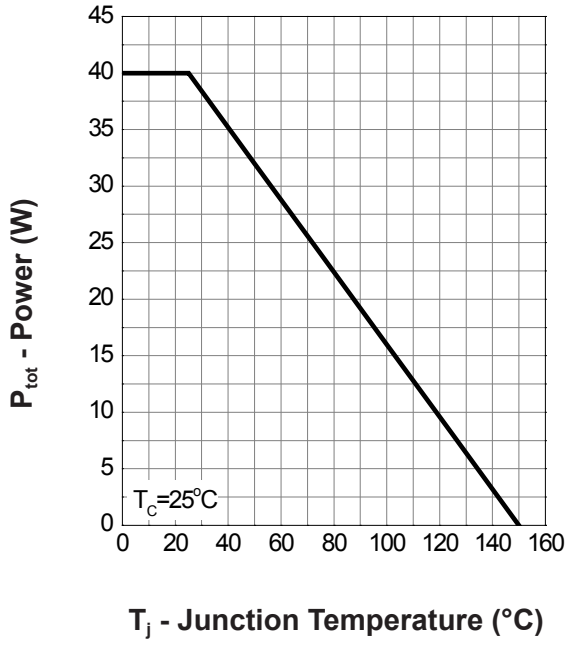
Electrical Characteristics (T_A = 25°C unless otherwise noted)

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	-0.5	-0.7	-1	V
I_{GSS}	Gate Leakage Current	V_{GS}=±12V, V_{DS}=0V	-	-	±100	nA
$R_{DS(ON)}$ [d]	Drain-Source On-state Resistance	V_{GS}=-4.5V, I_{DS}=-25A	-	4.5	5.0	mΩ
		V_{GS}=-2.5V, I_{DS}=-15A	-	5.5	7.5	
		V_{GS}=-1.8V, I_{DS}=-5A	-	6.8	11.7	
Diode Characteristics						
V_{SD} [d]	Diode Forward Voltage	I_{SD}=-1A, V_{GS}=0V	-	-0.65	-1	V
t_{rr}	Reverse Recovery Time	I_{SD}=-25A, dI_{SD}/dt=100A/μs	-	44	-	ns
Q_{rr}	Reverse Recovery Charge		-	30	-	nC
Dynamic Characteristics [e]						
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz	-	2.0	-	Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-10V, Frequency=1.0MHz	-	6000	7800	pF
C_{oss}	Output Capacitance		-	1000	-	
C_{rss}	Reverse Transfer Capacitance		-	800	-	
$t_{d(ON)}$	Turn-on Delay Time	V_{DD}=-10V, R_L=10Ω, I_{DS}=-1A, V_{GEN}=-10V, R_G=6Ω	-	16	29	ns
t_r	Turn-on Rise Time		-	18	33	
$t_{d(OFF)}$	Turn-off Delay Time		-	230	414	
t_f	Turn-off Fall Time		-	85	153	
Gate Charge Characteristics [e]						
Q_g	Total Gate Charge	V_{DS}=-10V, V_{GS}=-4.5V, I_{DS}=-25A	-	63	87	nC
Q_{gs}	Gate-Source Charge		-	7.9	-	
Q_{gd}	Gate-Drain Charge		-	22	-	

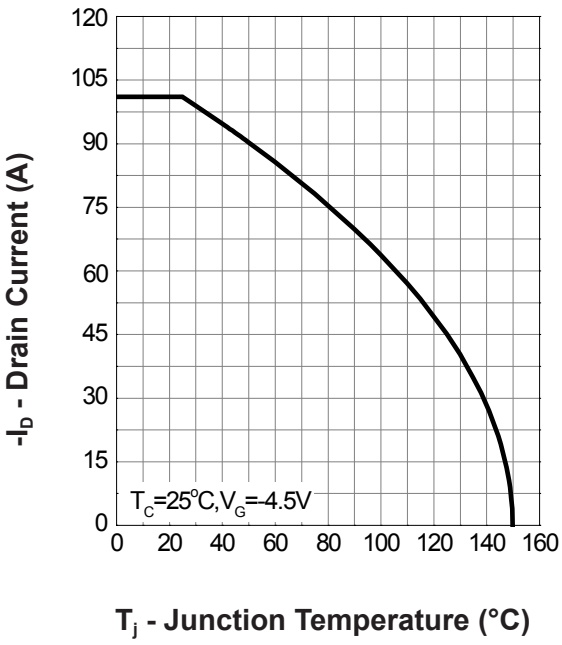
Note d：Pulse test ; pulse width≤300μs, duty cycle≤2%.
Note e：Guaranteed by design, not subject to production testing.nd on package type.

Typical Operating Characteristics

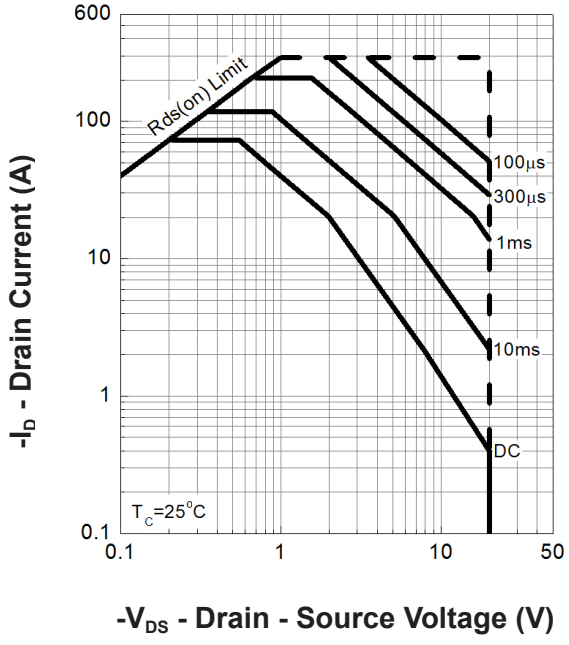
Power Dissipation



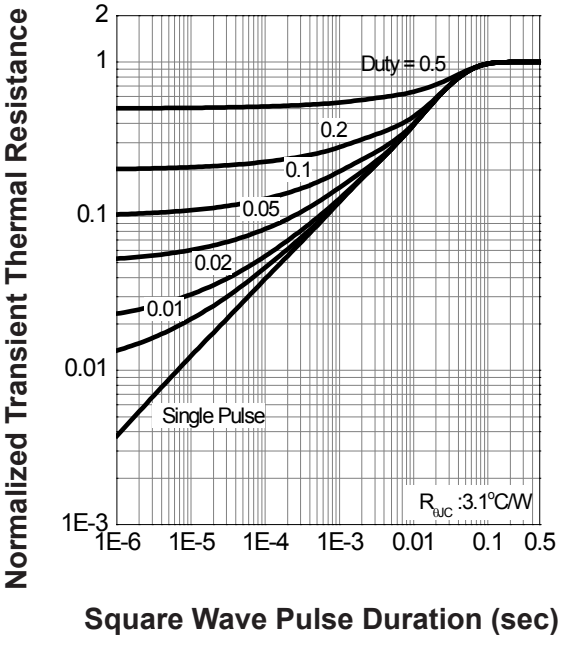
Drain Current



Safe Operation Area

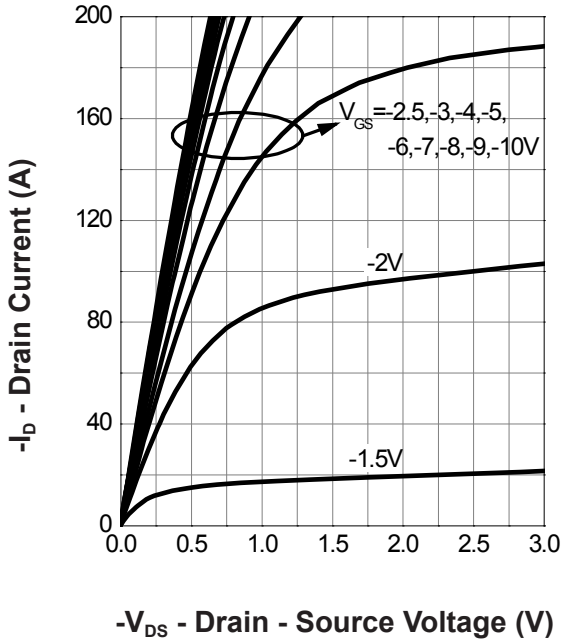


Thermal Transient Impedance

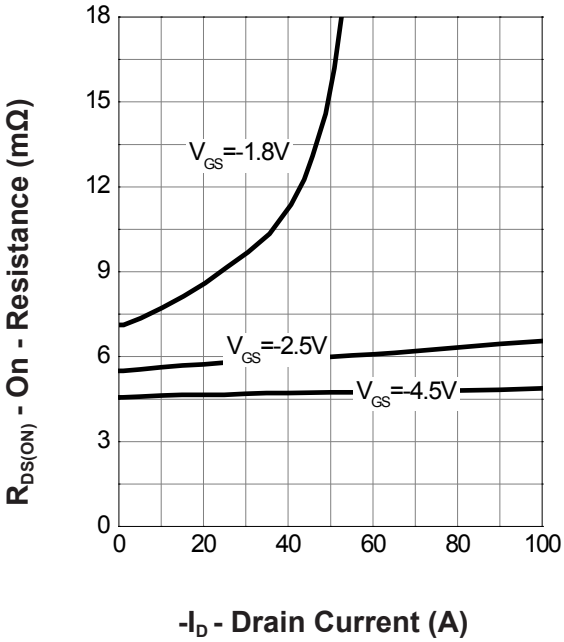


Typical Operating Characteristics(Cont.)

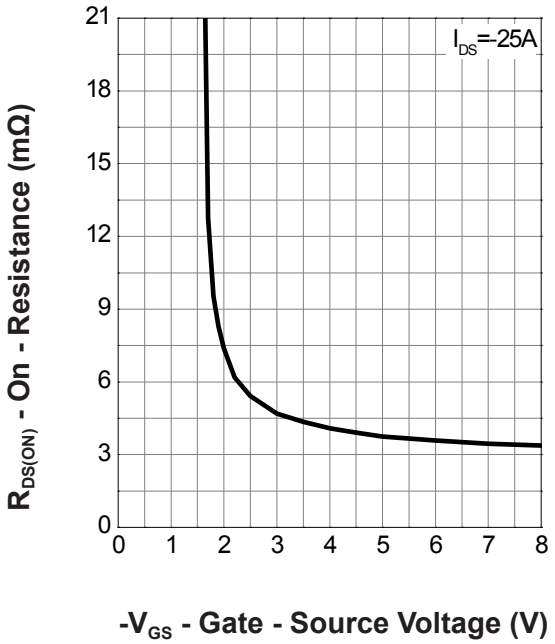
Output Characteristics



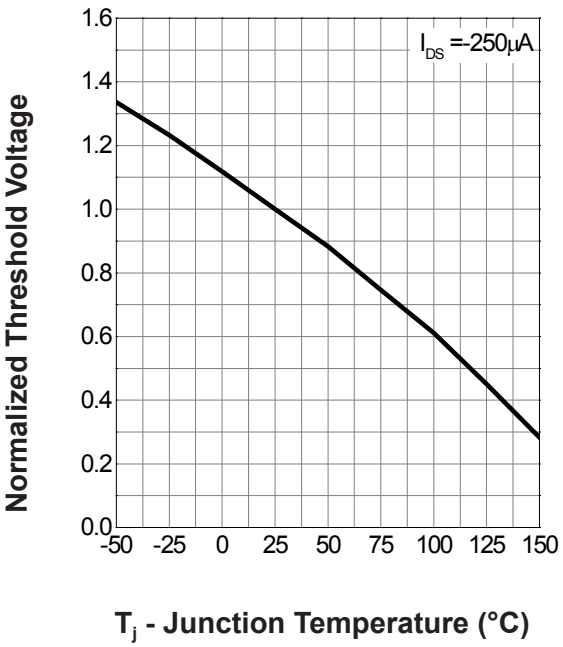
Drain-Source On Resistance



Gate-Source On Resistance

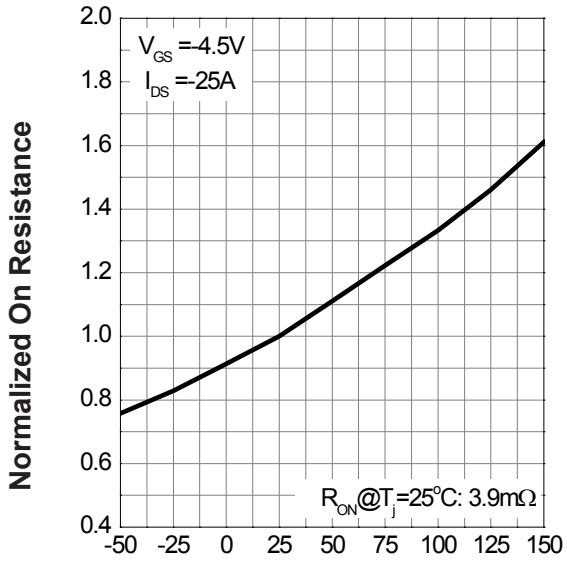


Gate Threshold Voltage

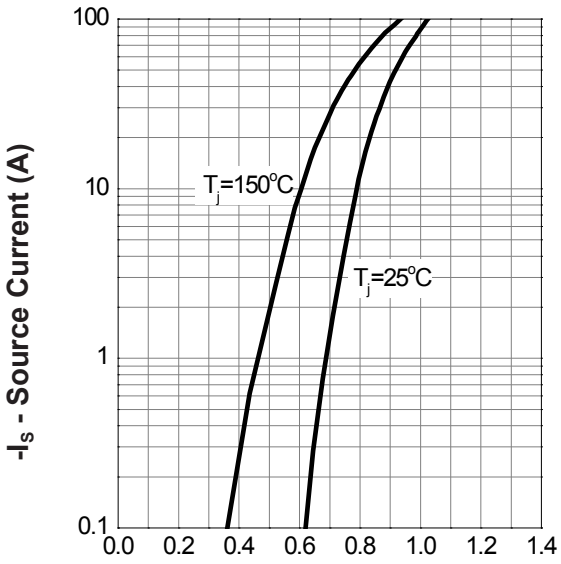


Typical Operating Characteristics(Cont.)

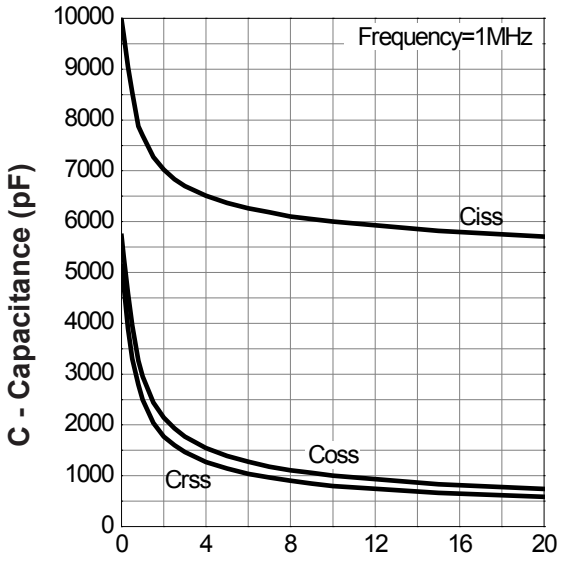
Drain-Source On Resistance



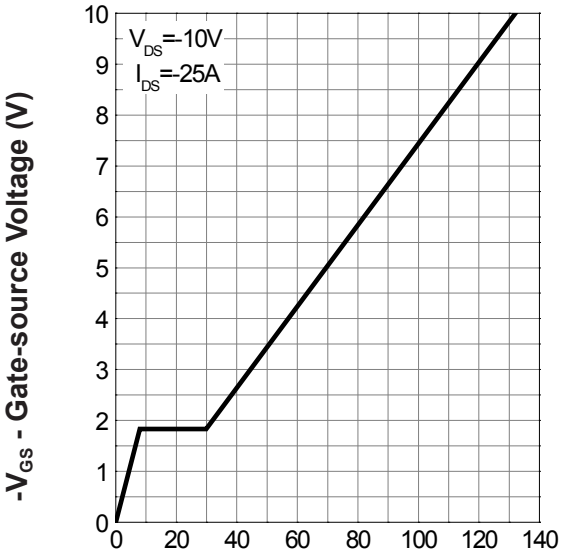
Source-Drain Diode Forward



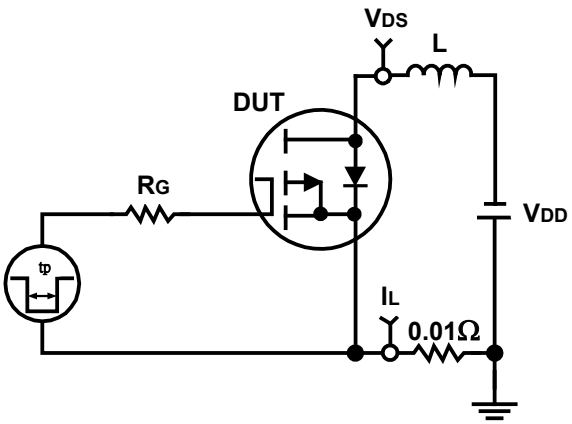
Capacitance

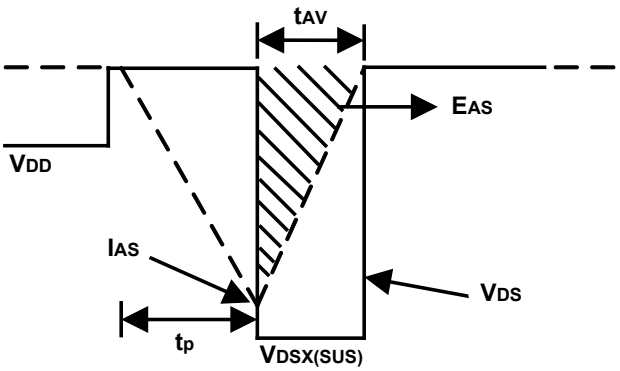


Gate Charge

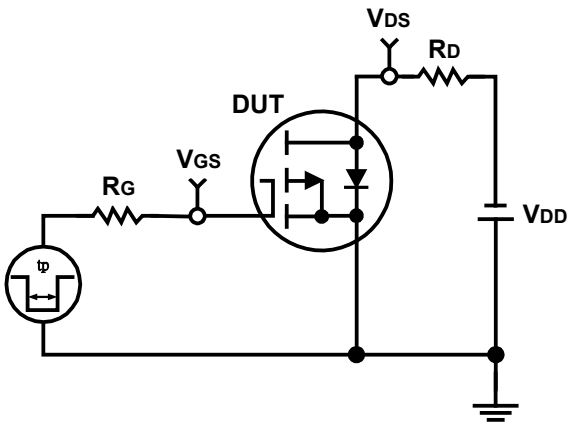


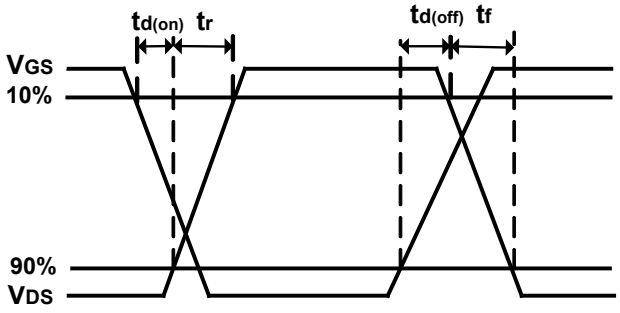
Avalanche Test Circuit and Waveforms





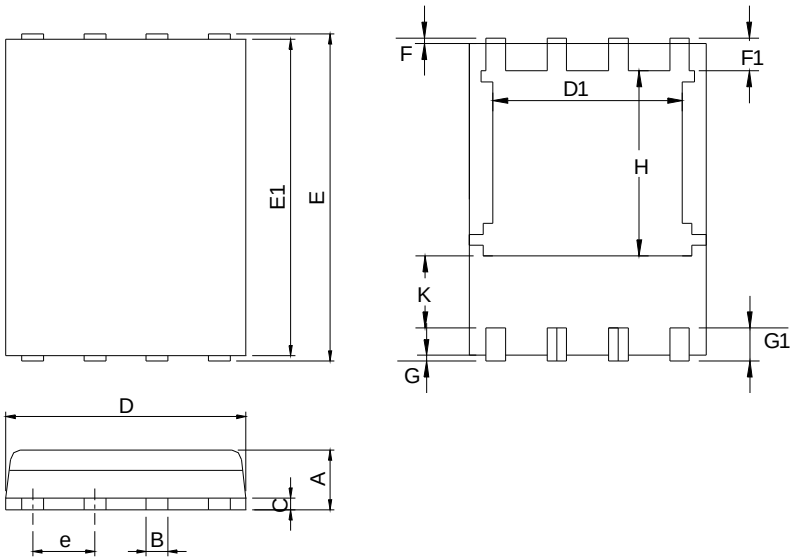
Switching Time Test Circuit and Waveforms





Package Information

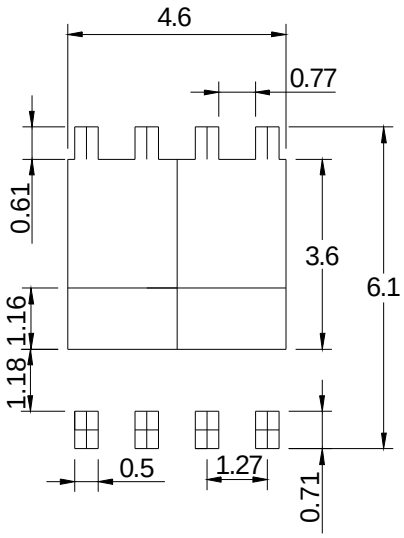
DFN5x6-8



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	-

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