

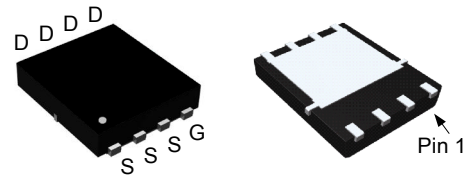
Features

- 650V/17A
 $R_{DS(ON)}=0.22\Omega(\text{max.})@V_{GS}=10V$
- 100% UIS + R_g Tested
- Reliable and Rugged
- Lead Free and Green Devices Available
(RoHS Compliant)

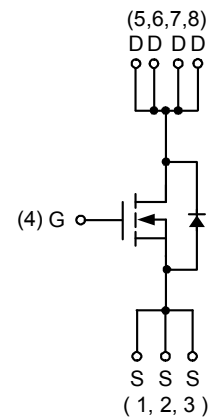
Applications

- AC/DC Power Conversion in Switched Mode Power Supplies (SMPS).
- Uninterruptible Power Supply (UPS).
- Adapter.

Pin Description



DFN5x6-8



N-Channel MOSFET

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

Symbol	Parameter		Rating	Unit
Common Ratings				
V _{DSS}	Drain-Source Voltage		650	V
V _{GSS}	Gate-Source Voltage		±30	
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	17	A
I _D	Continuous Drain Current	T _C =25°C	17	A
		T _C =100°C	12.8	
I _{DM} ^a	Pulsed Drain Current	T _C =25°C	51	
P _D	Maximum Power Dissipation	T _C =25°C	125	W
		T _C =100°C	50	
R _{θJC}	Thermal Resistance-Junction to Case		1	°C/W
R _{θJA}	Thermal Resistance-Junction to Ambient		50	°C/W
I _{AS} ^b	Avalanche Current, Single pulse	L=10mH	6	A
E _{AS} ^b	Avalanche Energy, Single pulse	L=10mH	180	mJ

Note a : Pulse width limited by maximum junction temperature.

Note b : UIS tested and pulse width limited by maximum junction temperature (initial temperature T_J=25°C).

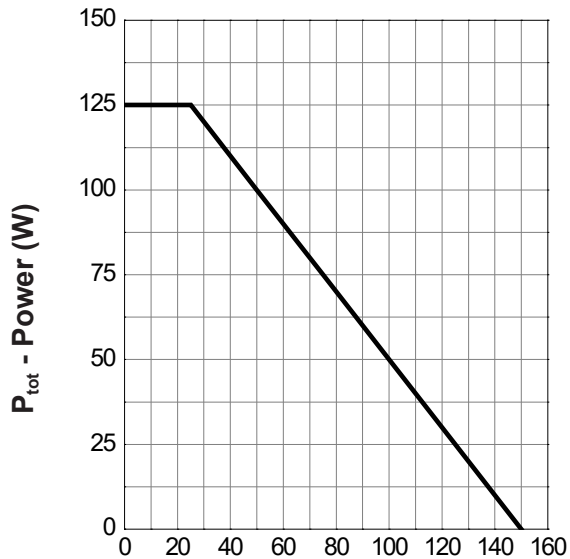
Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

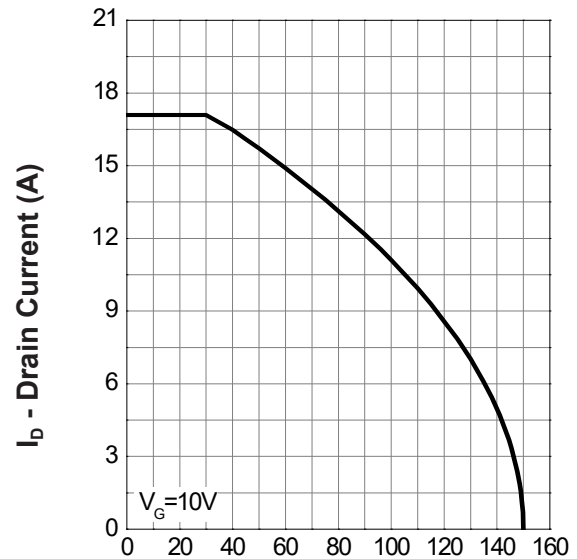
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _{DS} =250μA	650	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =520V, V _{GS} =0V	-	-	1	μA
		T _J =85°C	-	-	30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250μA	2.5	3.5	4.5	V
I _{GSS}	Gate Leakage Current	V _{GS} =±30V, V _{DS} =0V	-	-	±100	nA
R _{DS(ON)} ^c	Drain-Source On-state Resistance	V _{GS} =10V, I _{DS} =6A	-	0.22	0.255	Ω
Diode Characteristics						
V _{SD} ^c	Diode Forward Voltage	I _{SD} =12A, V _{GS} =0V	-	0.9	1.3	V
t _{rr} ^d	Reverse Recovery Time	I _{SD} =6A, dI _{SD} /dt=100A/μs	-	244	-	ns
Q _{rr} ^d	Reverse Recovery Charge		-	2.7	-	μC
Dynamic Characteristics ^d						
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	-	7	-	Ω
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =325V, Frequency=1.0MHz	-	1093	1421	pF
C _{oss}	Output Capacitance		-	33	-	
C _{rss}	Reverse Transfer Capacitance		-	6	-	
t _{d(ON)}	Turn-on Delay Time	V _{DD} =30V, R _L =30Ω, I _{DS} =1A, V _{GEN} =10V, R _G =6Ω	-	15	27	ns
t _r	Turn-on Rise Time		-	13	24	
t _{d(OFF)}	Turn-off Delay Time		-	41	74	
t _f	Turn-off Fall Time		-	92	165	
Gate Charge Characteristics ^d						
Q _g	Total Gate Charge	V _{DS} =325V, V _{GS} =10V, I _{DS} =6A	-	24	36	nC
Q _{gs}	Gate-Source Charge		-	6.1	-	
Q _{gd}	Gate-Drain Charge		-	8.9	-	

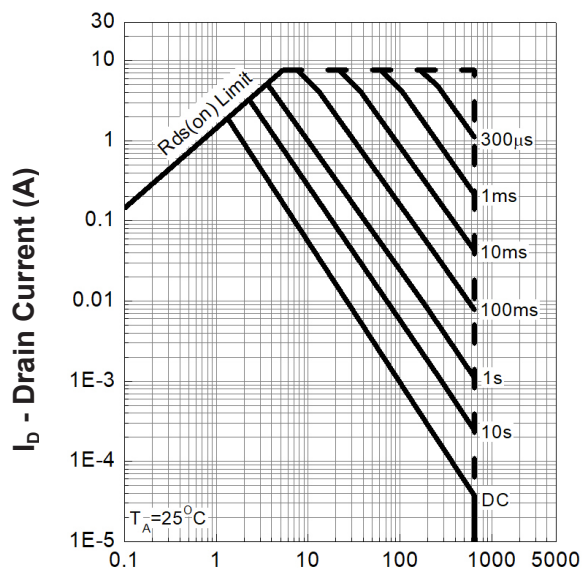
Note c : Pulse test ; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

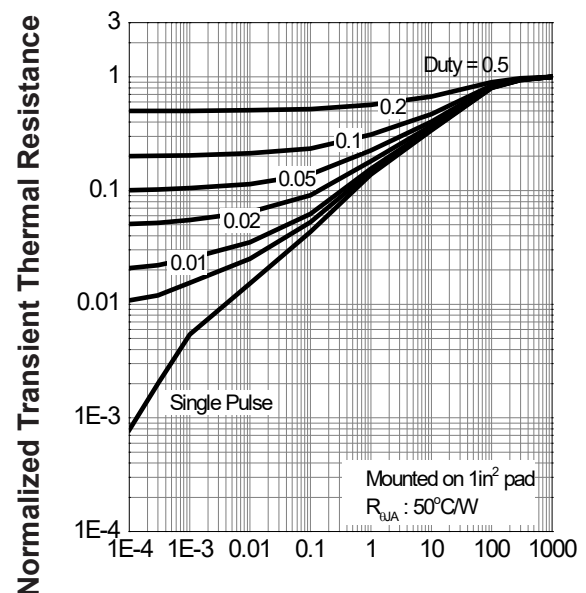
Note d : Guaranteed by design, not subject to production testing.

Typical Operating Characteristics

Power Dissipation

 T_c - Case Temperature (°C)

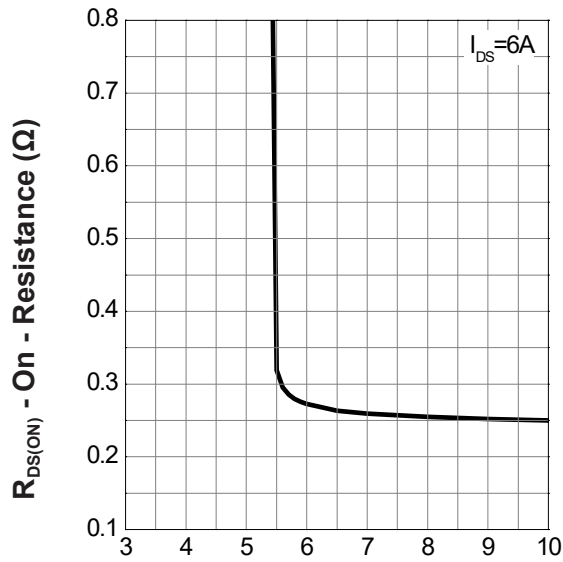
Drain Current

 T_c - Case Temperature (°C)

Safe Operation Area

 V_{DS} - Drain - Source Voltage (V)

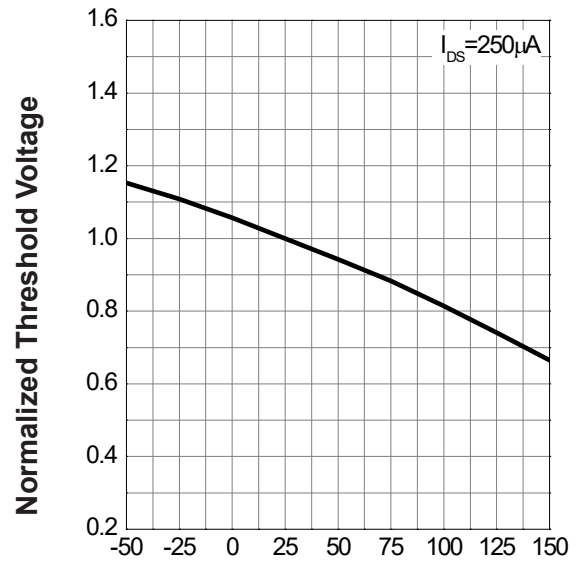
Thermal Transient Impedance


Square Wave Pulse Duration (sec)

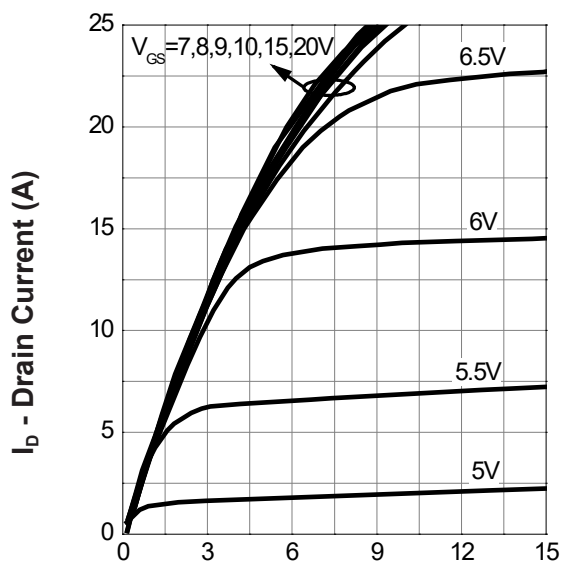
Typical Operating Characteristics(Cont.)

Gate-Source On Resistance


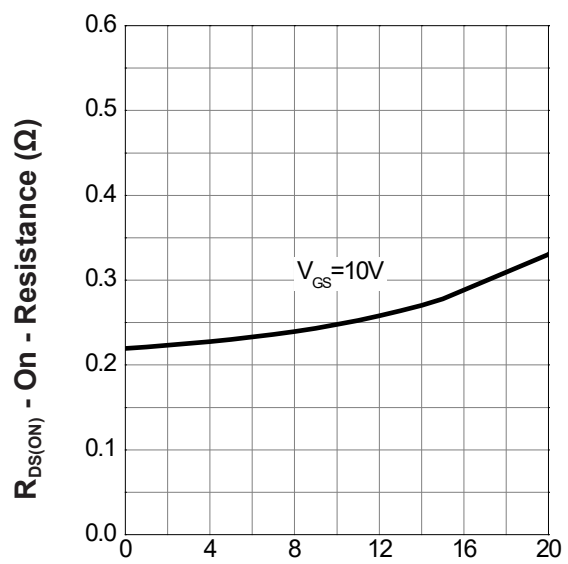
V_{GS} - Gate - Source Voltage (V)

Gate Threshold Voltage


T_J - Junction Temperature ($^{\circ}C$)

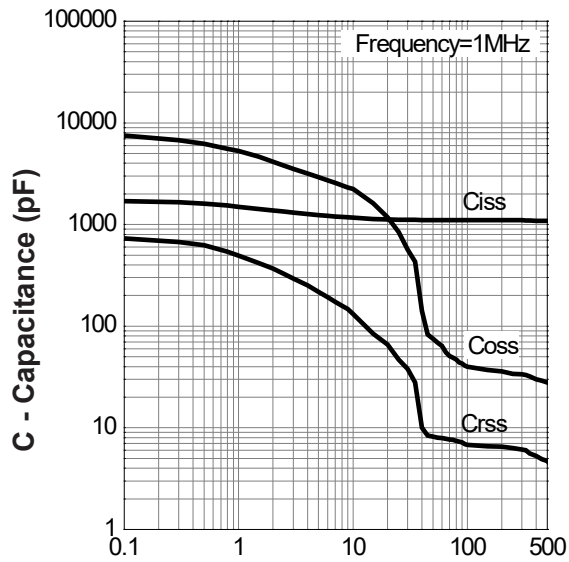
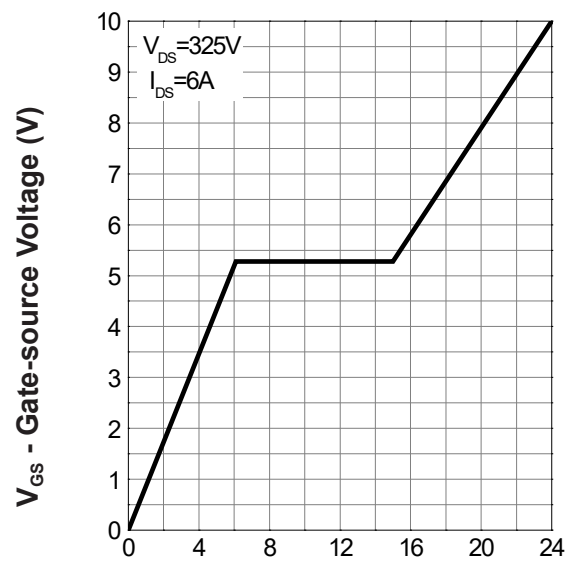
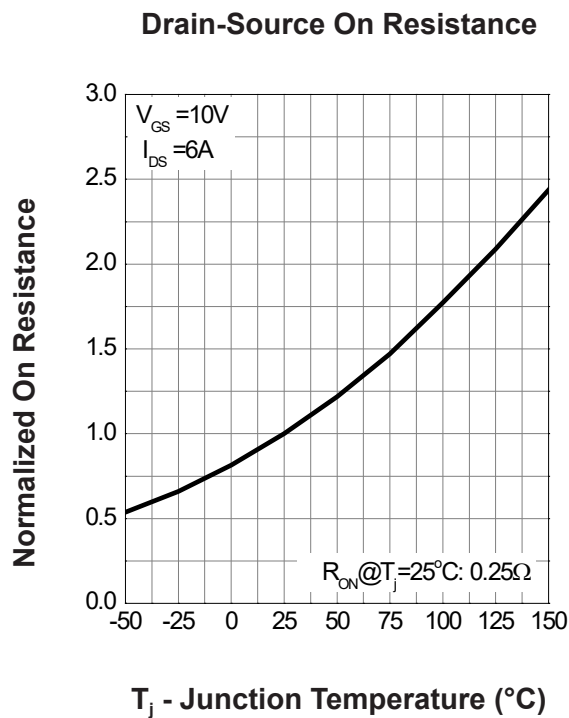
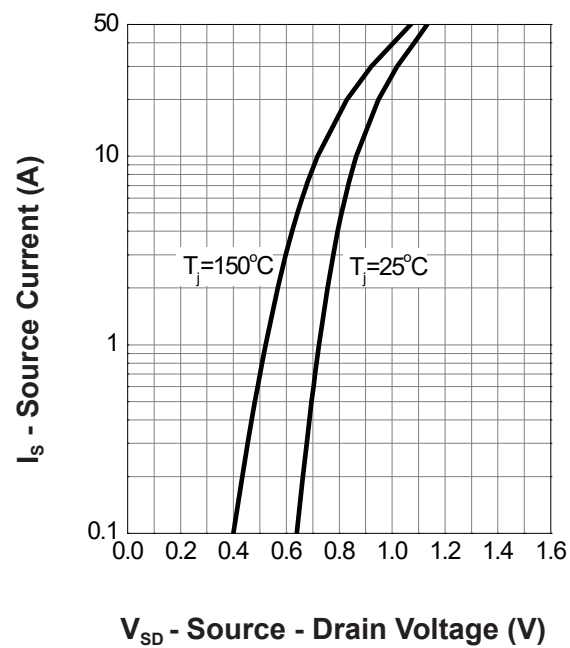
Output Characteristics


V_{DS} - Drain - Source Voltage (V)

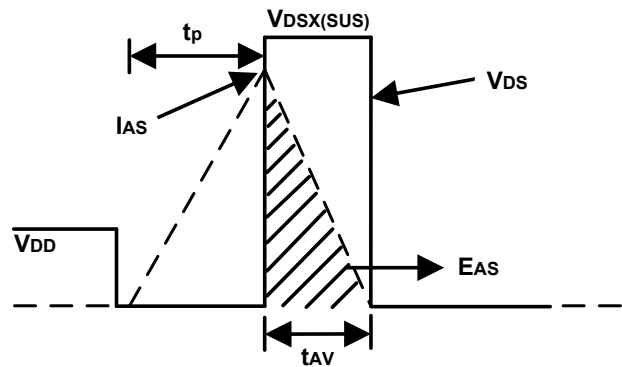
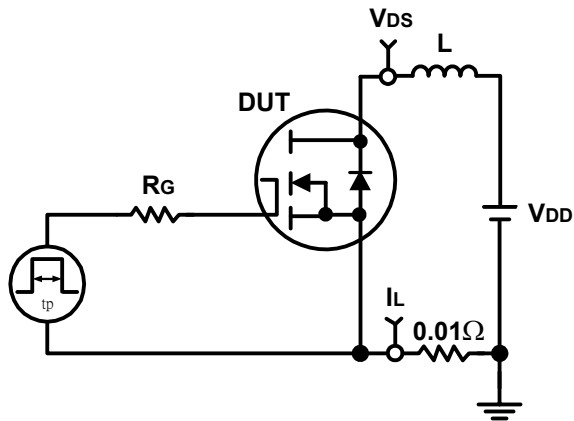
Drain-Source On Resistance


I_D - Drain Current (A)

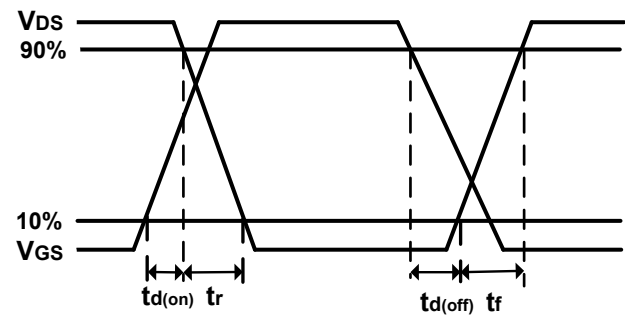
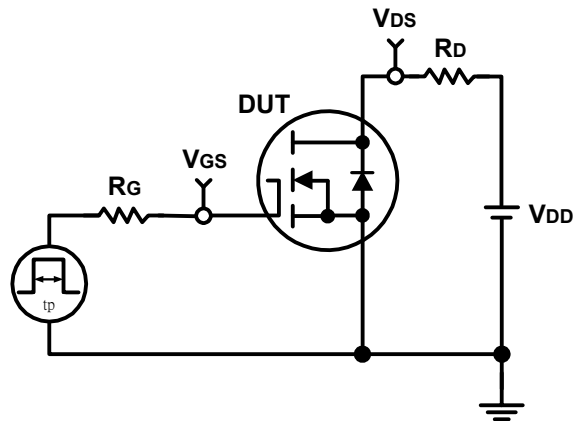
Typical Operating Characteristics(Cont.)

Capacitance

Gate Charge

Drain-Source On Resistance

Source-Drain Diode Forward


Avalanche Test Circuit and Waveforms

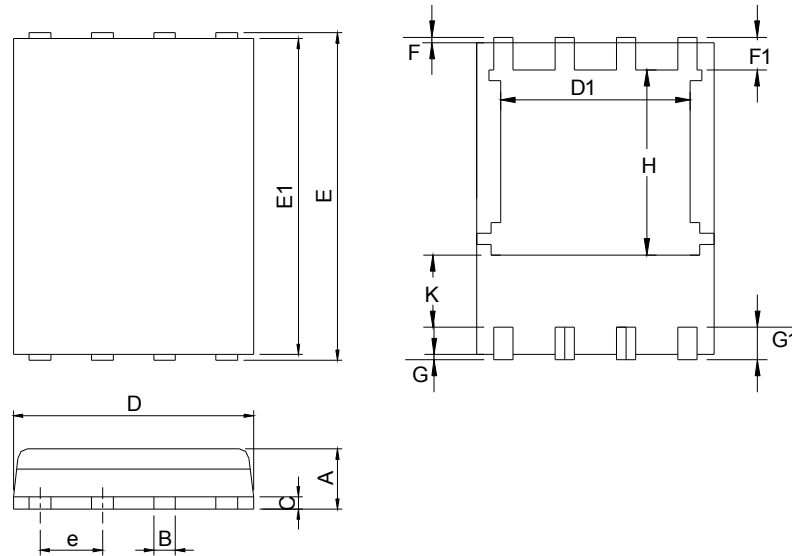


Switching Time Test Circuit and Waveforms



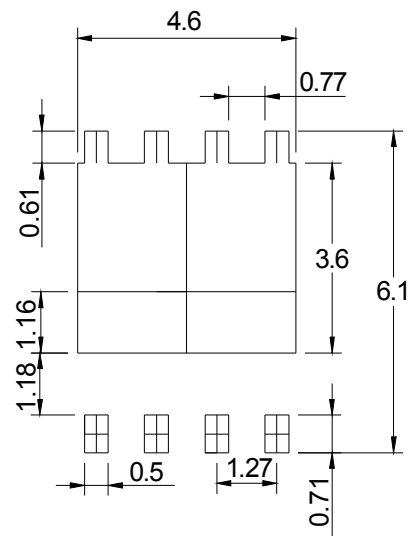
Package Information

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.