STM303P150LSH8H

P-Channel Enhancement Mode Field Effect Transistor

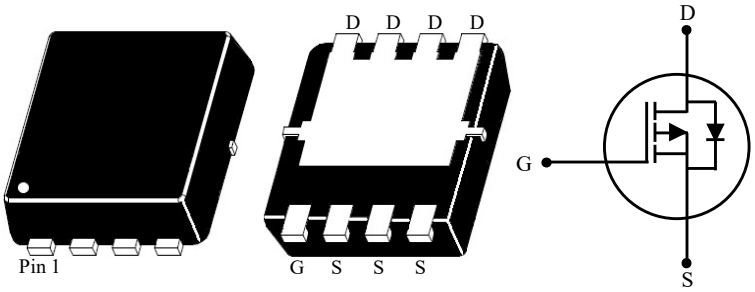
FEATURES

· Low $R_{DS(on)}$

· Suffix "H" indicates Halogen-free parts, ex.STM303P150LSH8H

PIN CONFIGURATION

DFN3×3-8L



D	Drain
G	Gate
S	Source

Maximum Ratings(T_A=25 ℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	
Drain Current T_C=25℃	I_D	-44	A
Drain Current T_C=100℃		-27	
Pulsed Drain Current (Note 1)	I_{DM}	-150	A
Avalanche Current	I_{AS}	-27	A
Avalanche Energy (Note 2)	E_{AS}	36.4	mJ
Power Dissipation T_C=25℃	P_D	33.7	W
Thermal Resistance from Junction to Ambient (Note 3)	$R_{\theta JA}$	45	℃/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	3.7	℃/W
Operating Junction and Storage Temperature Range	T_J,T_{stg}	- 55 to + 150	℃

Note:

1. The data tested by pulsed, pulse width ≦100μs, duty cycle ≦2%, Reptitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C

2. Limited by $T_{J(MAX)}$, starting T_J=25℃, L=0.1mH, R_g=25Ω, I_{AS}=-27A, V_{GS}=-10V.

3. Device mounted on FR-4 substrate PC board, 2oz copper, with 1 inch^2 copper plate in still air.

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Electrical Characteristics(T_A=25 ℃ unless otherwise specified)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	I_D=-250μA	$V_{(BR)DSS}$	-30	-	-	V
Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250μA	$V_{GS(th)}$	-1.0	-	-2.5	V
Zero Gate Voltage Drain Current	V_{DS}=-30V	I_{DSS}	-	-	-1	μA
Gate Leakage Current	V_{GS}=±20V	I_{GSS}	-	-	±100	nA
Drain-Source On-Resistance	V_{GS}=-10V, I_D=-15A	$R_{DS(on)}$	-	12	15	mΩ
	V_{GS}=-4.5V, I_D=-10A		-	-	18	
Forward Transconductance	V_{DS}=-5V, I_D=-10A	g_{FS}	-	23.5	-	S
Dynamic						
Gate Resistance	V_{DS}=0V, V_{GS}=0V, f=1MHz	R_g	-	4.2	-	Ω
Total Gate Charge	V_{DS}=-15V, V_{GS}=-4.5V, I_D=-15A	Q_g	-	21	-	nC
	V_{DS}=-15V, V_{GS}=-10V, I_D=-15A		-	43	-	
Gate-Source Charge		Q_{gs}	-	8	-	
Gate-Drain Charge		Q_{gd}	-	8	-	
Input Capacitance	V_{DS}=-15V, V_{GS}=0V, f=1MHz	C_{iss}	-	2363	-	pF
Output Capacitance		C_{oss}	-	244	-	
Reverse Transfer Capacitance		C_{rss}	-	184	-	
Turn on Delay Time	V_{DS}=-15V, I_D=-15A V_{GS}=-10V, R_g=3.3Ω	$t_{d(on)}$	-	13	-	ns
Turn on Rise Time		t_r	-	44	-	
Turn off Delay Time		$t_{d(off)}$	-	26	-	
Turn off Fall Time		t_f	-	7	-	
Drain-Source Body Diode						
Diode Forward Voltage	V_{GS}=0V, I_S=-1A	V_{SD}	-	-	-1.0	V
Diode Continuous Forward Current	-	I_S	-	-	-44	A
Diode Pulse Current		I_{SM}	-	-	-150	A
Reverse Recovery Time	I_S=-15A, di/dt=100A/μs	t_{rr}	-	14	-	ns
Reverse Recovery Charge		Q_{rr}	-	7	-	nC

RATINGS AND CHARACTERISTIC CURVES

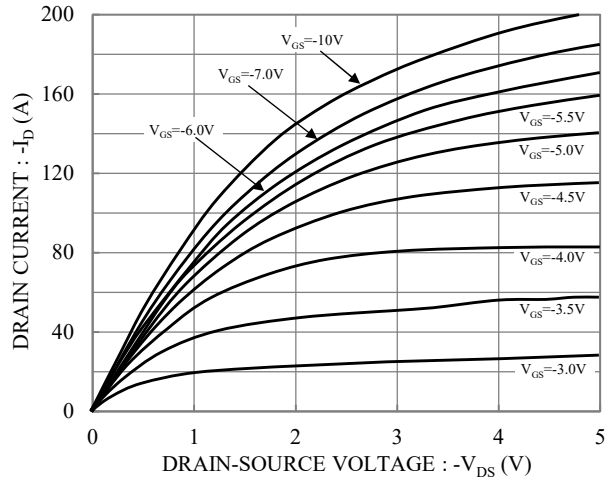

Fig.1 Typical Output Characteristics

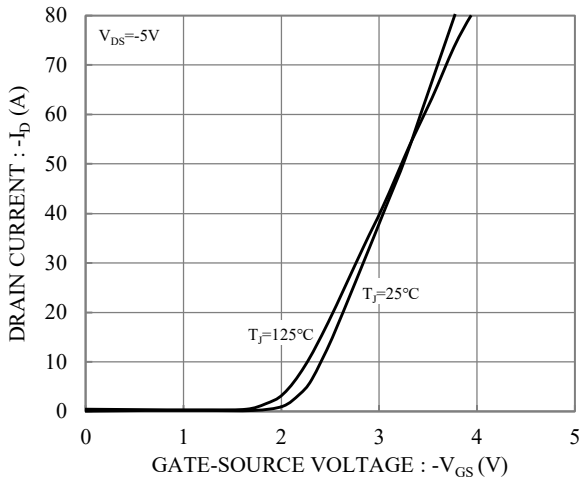

Fig.2 Typical Transfer Characteristics

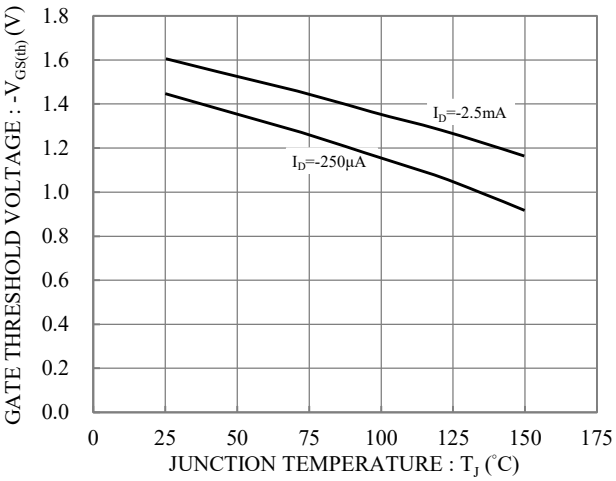

Fig.3 Gate Threshold Voltage vs. Junction Temperature

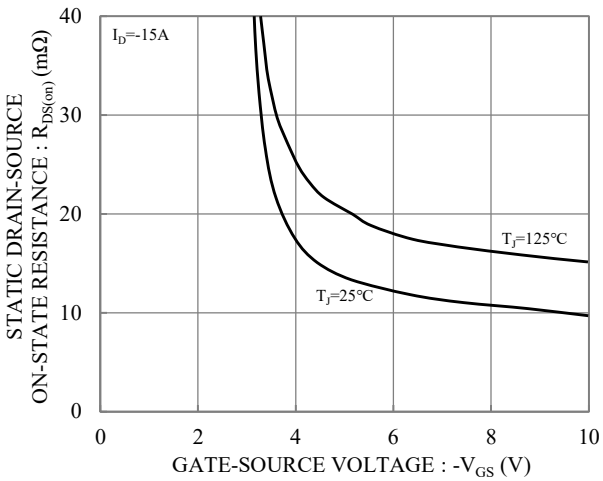

Fig.4 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

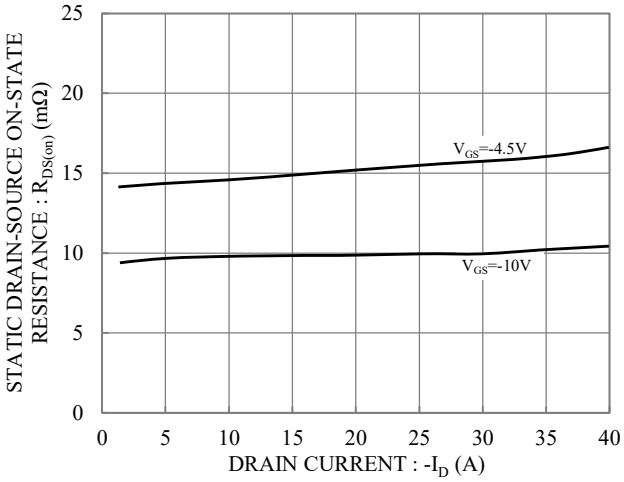

Fig.5 Static Drain-Source On-State Resistance vs. Drain Current

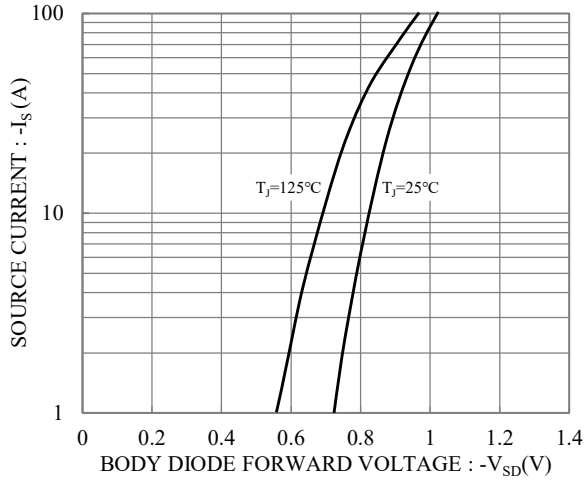

Fig.6 Body Diode Forward Voltage vs. Source Current

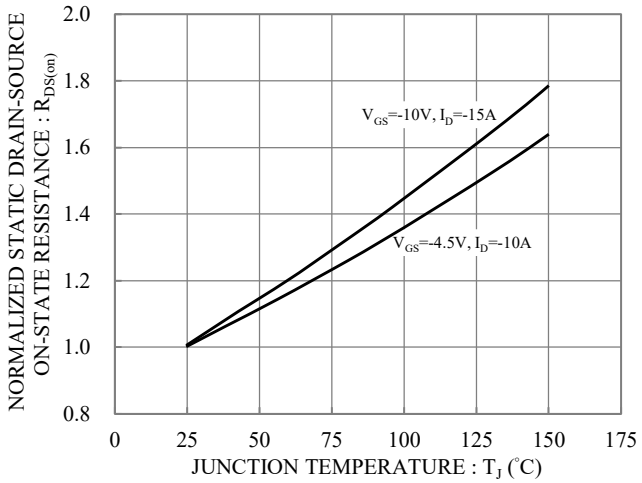

Fig.7 Drain-Source On-State Resistance vs. Junction Tempearture

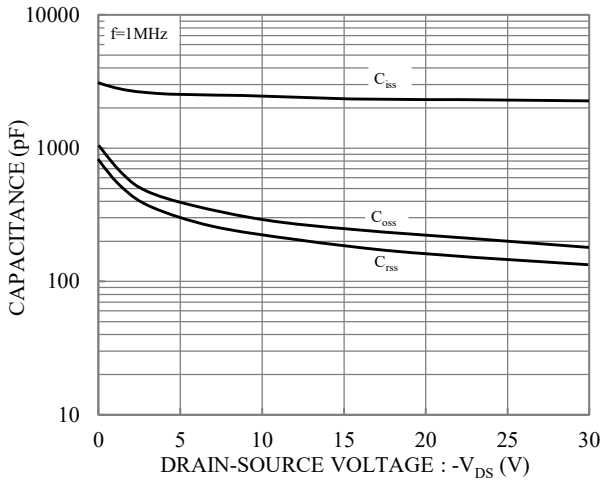

Fig.8 Capacitance vs. Drain-Source Voltage

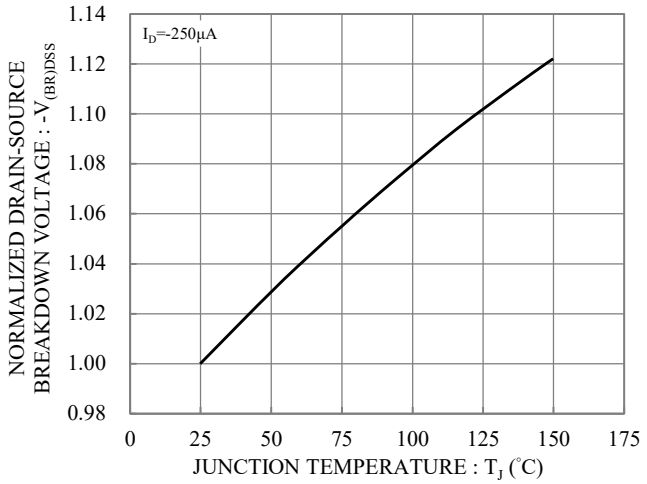

Fig.9 Breakdown Voltage vs. Junction Temperature

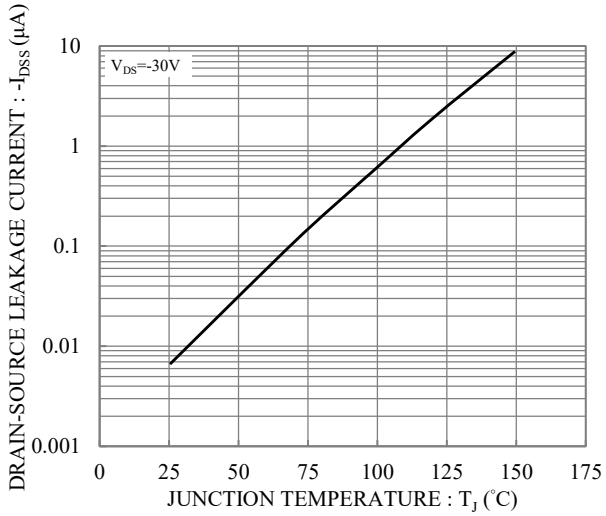

Fig.10 Drain-Source Leakge Current vs. Junction Temperature

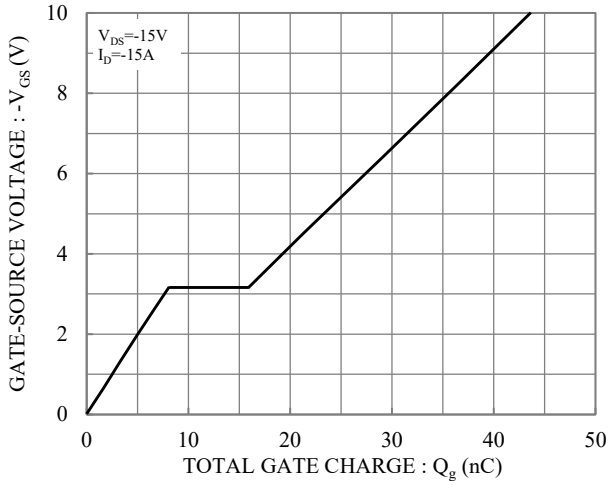

Fig.11 Gate Charge Characteristics

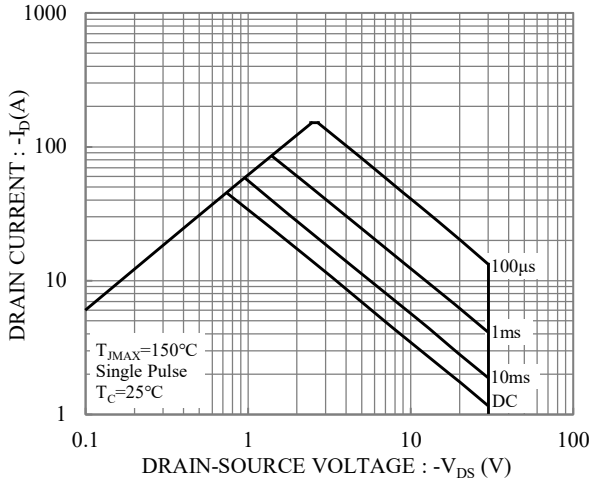

Fig.12 Safe Operation Area

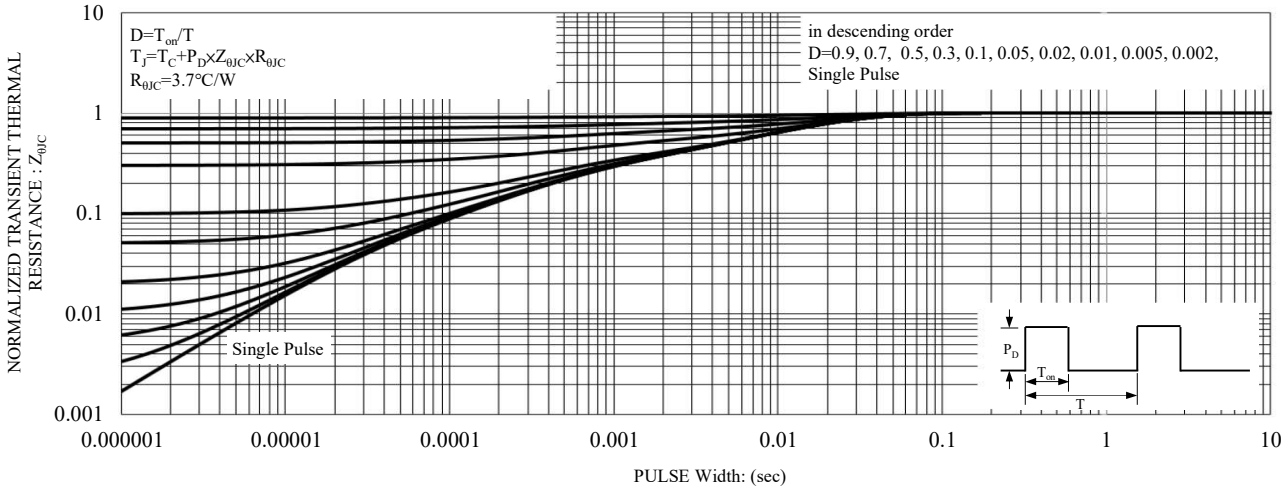

Fig.13 Maximum Transient Thermal Impedance

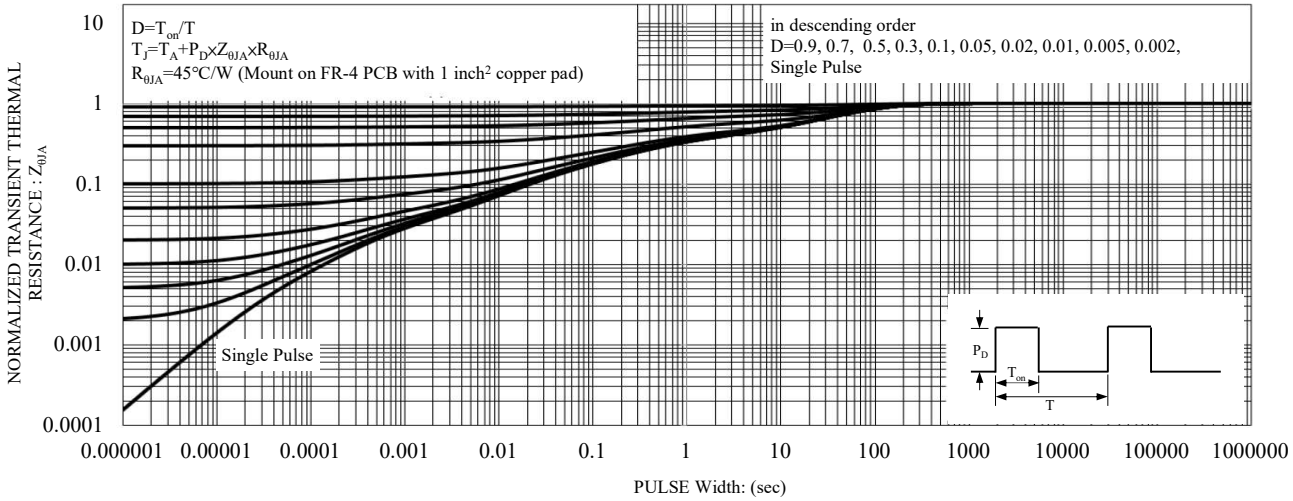

Fig.14 Maximum Transient Thermal Impedance

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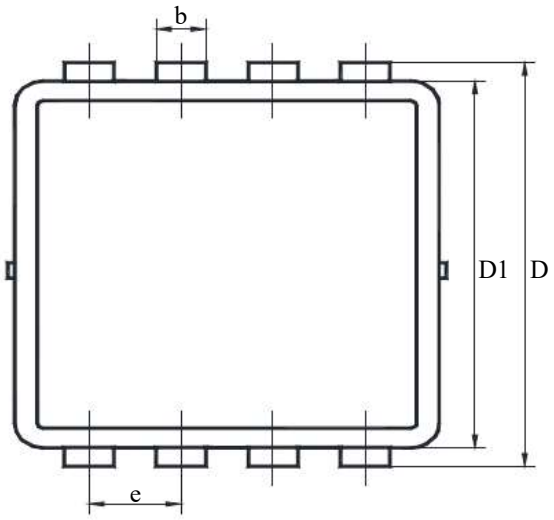
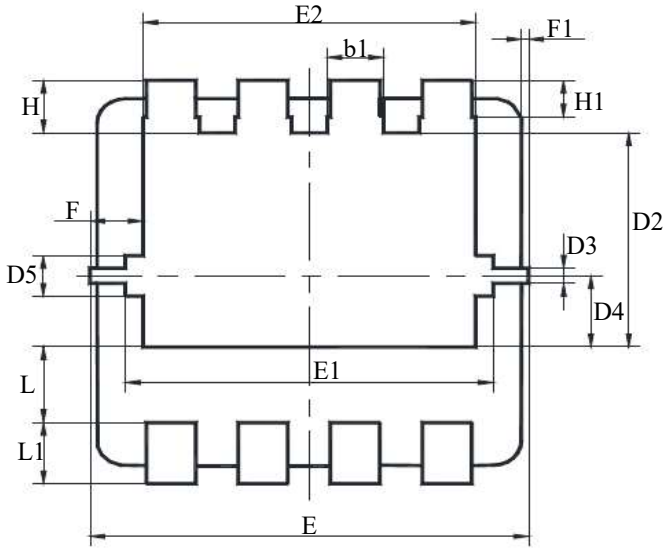
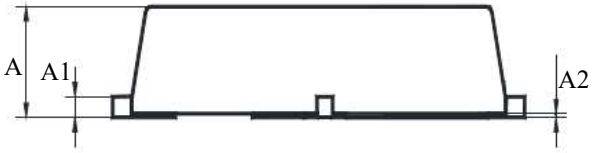
PACKAGE DIMENSION DFN3×3-8L



Top View



Bottom View



Side View

Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.700	0.900	0.028	0.035
A1	0.100	0.250	0.004	0.010
A2	0.000	0.050	0.000	0.002
b	0.240	0.350	0.009	0.014
b1	0.300	0.500	0.012	0.020
D	3.100	3.300	0.122	0.130
D1	2.900	3.100	0.114	0.122
D2	1.650	1.850	0.065	0.073
D3	0.150	0.250	0.006	0.010
D4	0.480	0.680	0.019	0.027
D5	0.230	0.430	0.009	0.017
E	3.000	3.200	0.118	0.126
E1	2.500	2.700	0.098	0.106
E2	2.400	2.600	0.094	0.102
e	0.600	0.700	0.024	0.028
F	0.275	0.475	0.011	0.019
F1	0.000	0.100	0.000	0.004
L	0.520	0.720	0.020	0.028
L1	0.300	0.500	0.012	0.020
H	0.330	0.530	0.013	0.021
H1	0.200	0.400	0.008	0.016

SUGGESTED SOLDER PAD LAYOUT

Unit:mm