

L2N7002KTT1G

S-L2N7002KTT1G

Small Signal MOSFET
380 mAmps, 60 Volts N-Channel

1. FEATURES

- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.
- ESD Protected

2. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
L2N7002KTT1G	RK	3000/Tape&Reel
L2N7002KTT3G	RK	10000/Tape&Reel

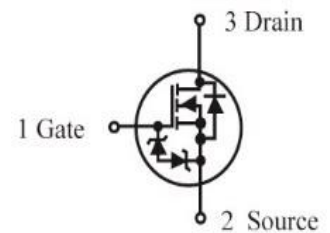
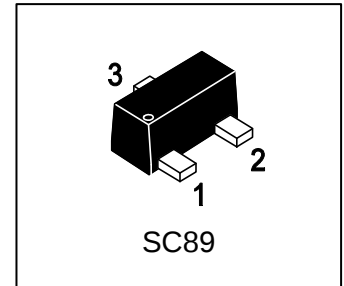
3. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	VDSS	60	V
Gate-Source Voltage	VGS	±20	V
Drain Current	ID		mA
– Steady State TA = 25°C		320	
TA = 85°C		230	
– t<5s TA = 25°C		380	
TA = 85°C		270	
Pulsed Drain Current (tp=10µs)	IDM	1.5	A
Source Current (Body Diode)	IS	300	mA

4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation(Note 1)	PD		mW
– Steady State		300	
– t<5s		420	
Junction-to-Ambient(Note 1)	RθJA		°C/W
– Steady State		417	
– t<5s		300	
Lead Temperature for Soldering Purposes (1/8 " from case for 10 s)	TL	260	°C
Junction and Storage temperature	TJ,Tstg	–55~+150	°C
Gate-Source ESD Rating(HBM, Method 3015)	ESD	2000	V

1. FR-5 = 1.0×0.75×0.062 in.



5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage (VGS = 0, ID = 250μA)	VBRDSS	60	-	-	V
Drain-to-Source Breakdown Voltage Temperature Coefficient	VBRDSS/TJ	-	71	-	mV/°C
Zero Gate Voltage Drain Current (VGS = 0, VDS = 60 V) TJ = 25°C	IDSS	-	-	1.0	μA
TJ = 125°C		-	-	500	
(VGS = 0, VDS = 50 V) TJ = 25°C		-	-	100	nA
Gate-Body Leakage Current, Forward (VGS = 20 V)	IGSSF	-	-	10	μA
Gate-Body Leakage Current, Reverse (VGS = - 20 V)	IGSSR	-	-	-10	μA

ON CHARACTERISTICS (Note 2)

Gate Threshold Voltage (VDS = VGS, ID = 250μA)	VGS(th)	1.0	1.5	2	V
Negative Threshold Temperature Coefficient	VGS(TH)/TJ	-	4	-	mV/°C
Static Drain-Source On-State Resistance (VGS = 10 V, ID = 500 mA) (VGS = 5.0 V, ID = 50 mA)	RDS(on)	-	-	2.3 2.7	Ohm
Forward Transconductance (VDS = 5.0 V, ID = 200 mA)	gfs	80	-	-	mS

DYNAMIC CHARACTERISTICS

Total Gate Charge (VDS = 10V, VGS = 4.5V, ID = 0.5A)	Qg	-	360	-	pC
Gate-Source Charge (VDS = 10V, VGS = 4.5V, ID = 0.5A)	Qgs	-	90	-	
Gate-Drain Charge (VDS = 10V, VGS = 4.5V, ID = 0.5A)	Qgd	-	210	-	
Input Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Ciss	-	34	-	pF
Output Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Coss	-	3	-	pF
Reverse Transfer Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Crss	-	2.2	-	pF

SWITCHING CHARACTERISTICS

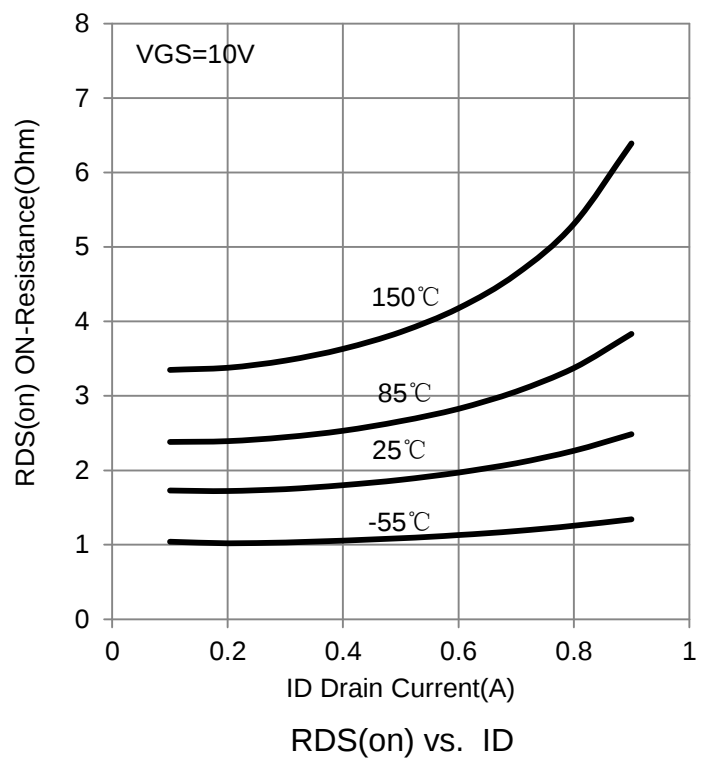
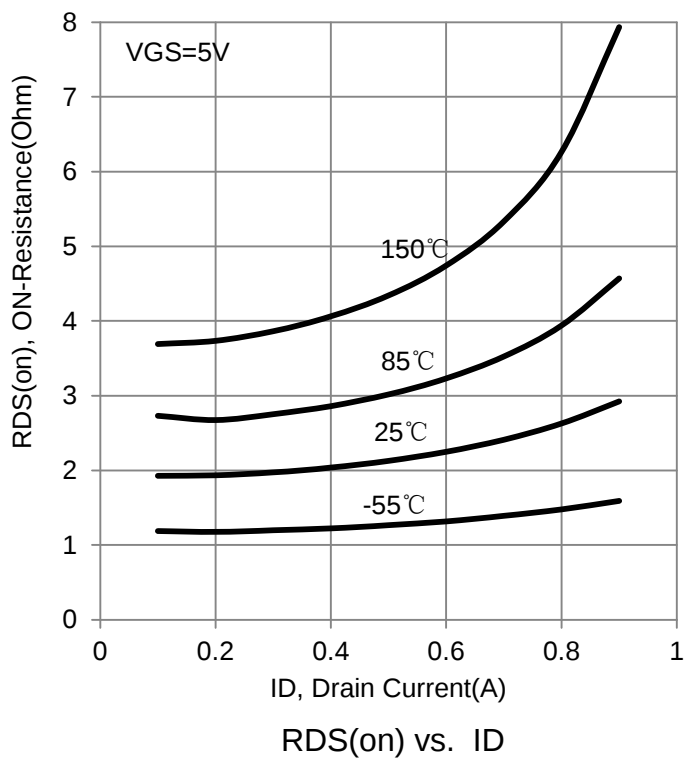
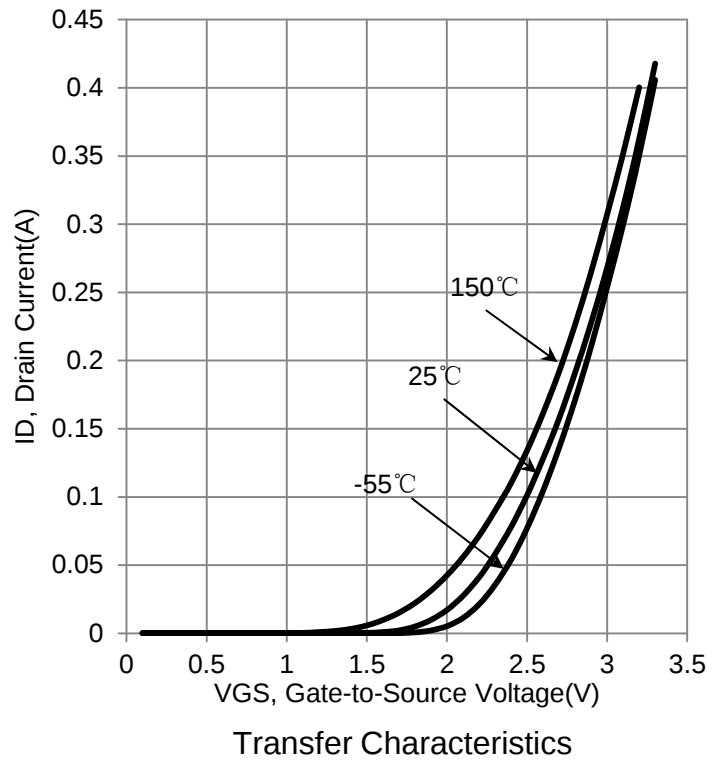
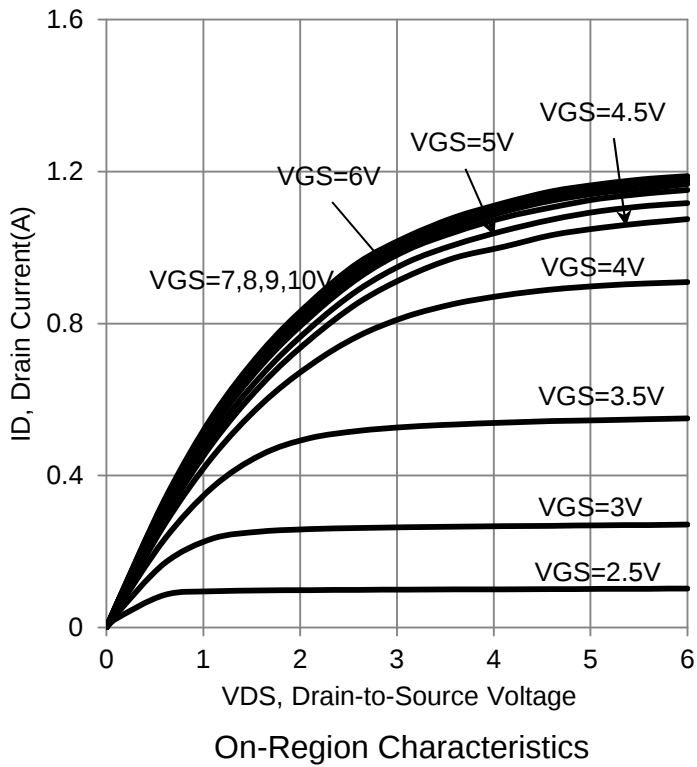
Turn-On Delay Time	VDS = 10 V, VGEN = 10 V, ID = 500 mA	td(on)	-	3.8	-	ns
Rise Time		tr	-	3.4	-	
Turn-Off Delay Time		td(off)	-	19	-	
Fall Time		tf	-	12	-	

BODY-DRAIN DIODE RATINGS

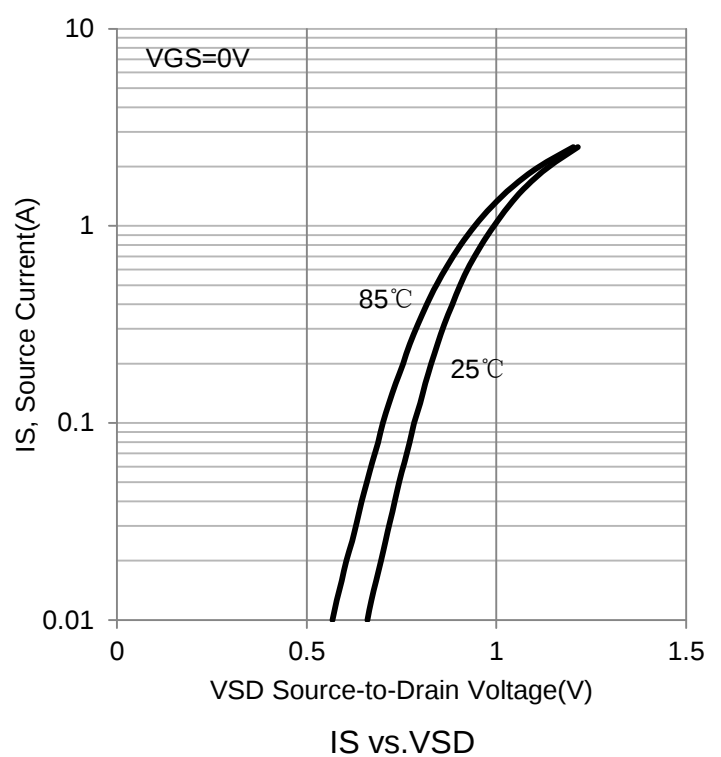
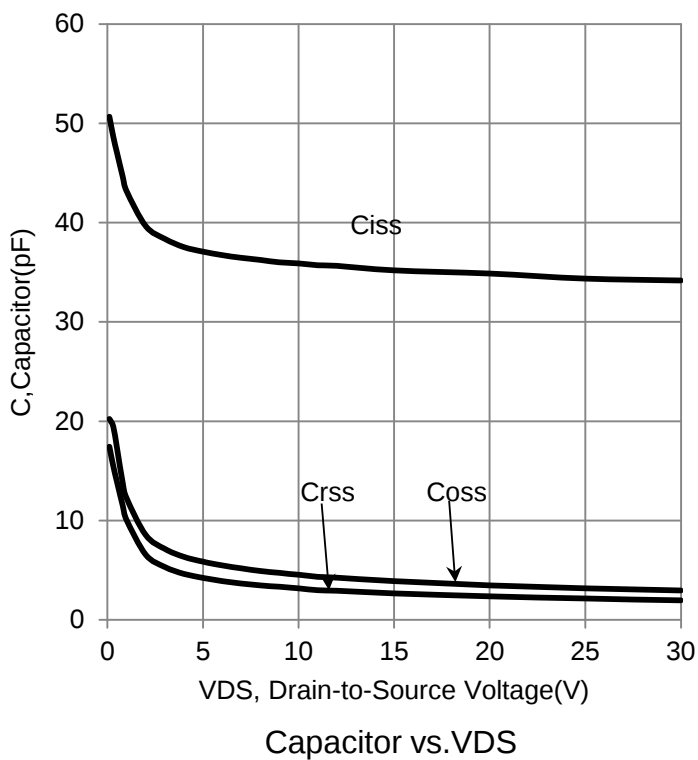
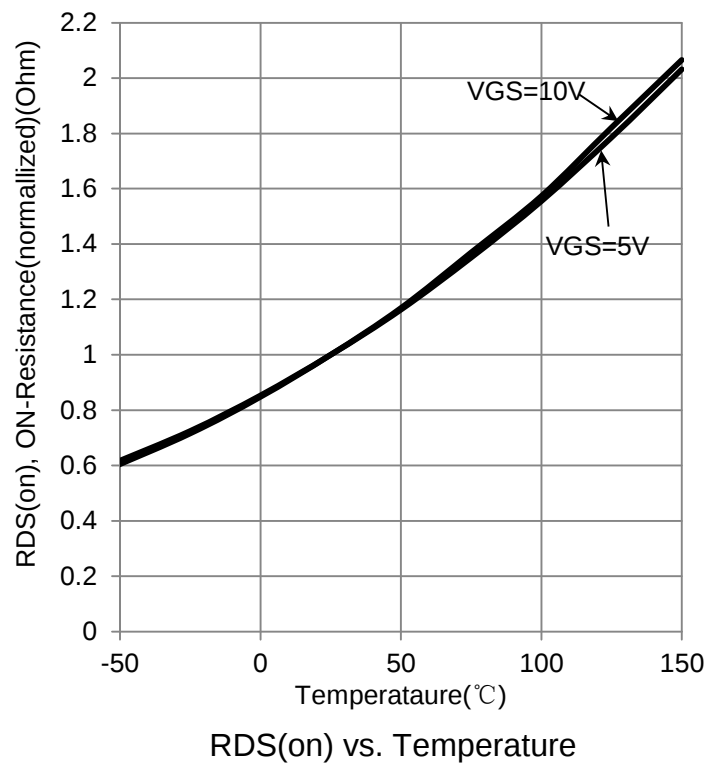
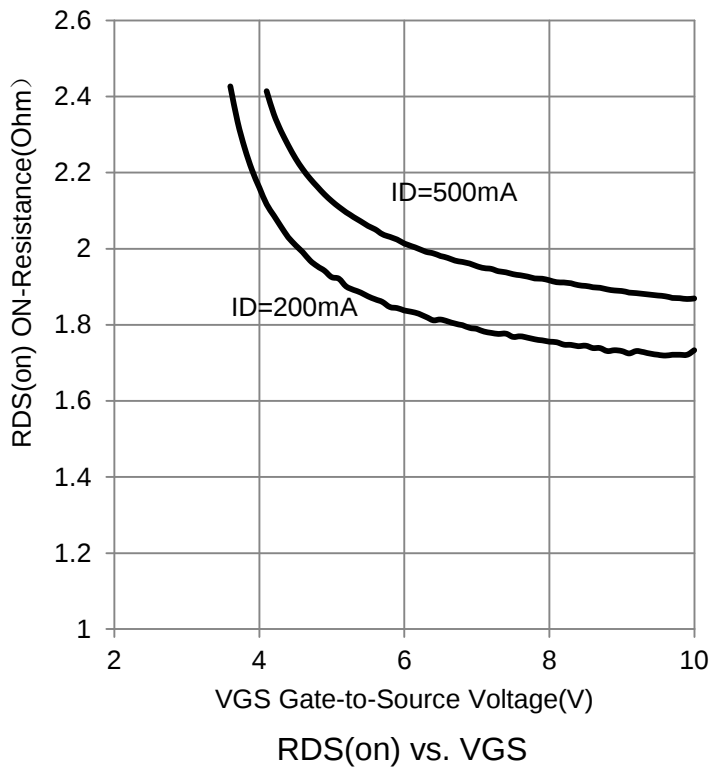
Diode Forward On-Voltage (IS = 115 mA, VGS = 0 V) TJ = 25°C	VSD	-	-	1.4	V
TJ = 85°C		-	0.7	-	

2.Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.

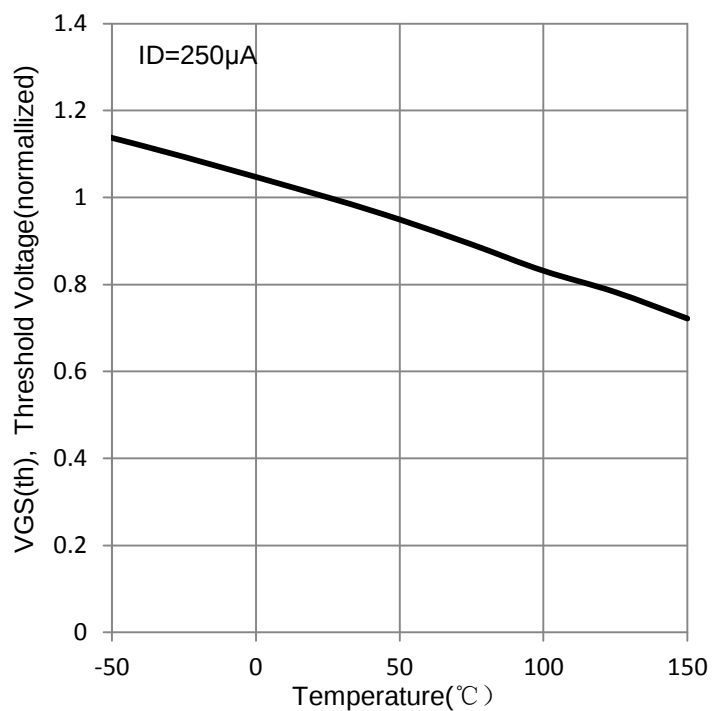
6. ELECTRICAL CHARACTERISTICS CURVES



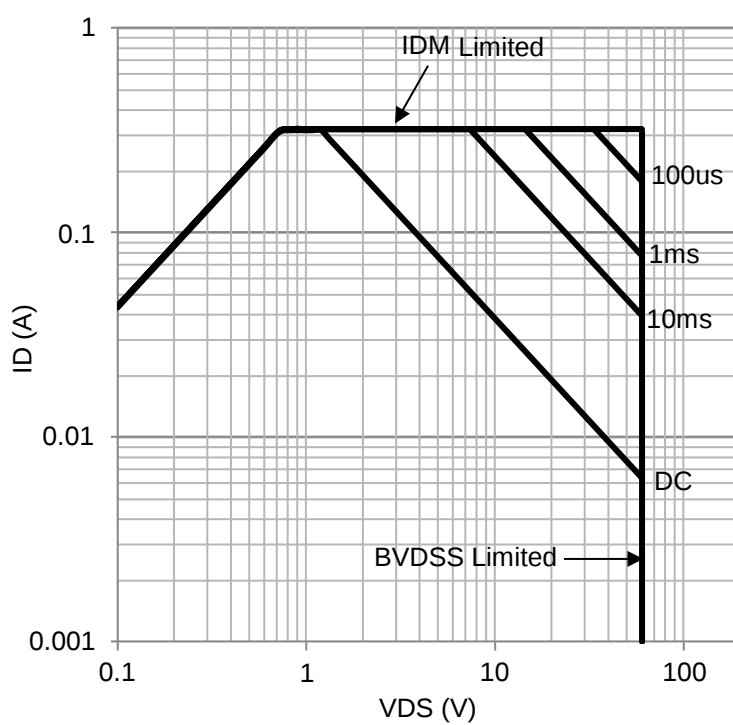
6. ELECTRICAL CHARACTERISTICS CURVES (Con.)



6. ELECTRICAL CHARACTERISTICS CURVES (Con.)



$V_{GS(th)}$ vs. Temperature



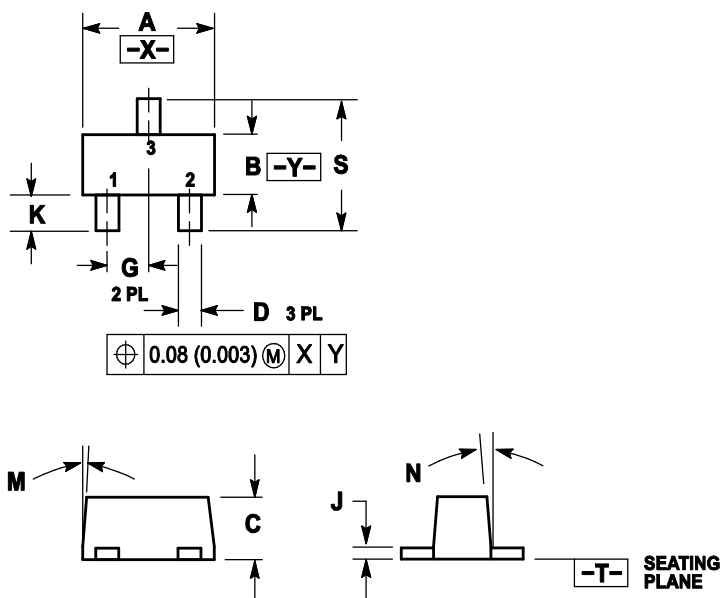
Safe Operating Area

7.OUTLINE AND DIMENSIONS

Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.50	1.60	1.70	0.059	0.063	0.067
B	0.75	0.85	0.95	0.030	0.034	0.040
C	0.60	0.70	0.80	0.024	0.028	0.031
D	0.23	0.28	0.33	0.009	0.011	0.013
G	0.50BSC			0.020BSC		
H	0.53REF			0.021REF		
J	0.10	0.15	0.20	0.004	0.006	0.008
K	0.30	0.40	0.50	0.012	0.016	0.02
L	1.10REF			0.043REF		
M	---	---	10°	---	---	10°
N	---	---	10°	---	---	10°
S	1.50	1.60	1.70	0.059	0.063	0.067



8.SOLDERING FOOTPRINT

