Features

- Input Voltage up to 30V
- MOSFET Turn on Resistor RSS(ON) =7.8mohm(Max)@Vgs=10V
- Drain to Drain MOSFET Module
- With ESD Protection
- Continuous Current=14A
- Green Product (RoHS, Lead-Free, Halogen-Free Compliant)

General Description

The GS95B0CS-R drain to drain connected MOSFET module provides an integrated solution with small dimension for battery pack of Mobile phone and electronic bracelet application.

Applications

- Mobile phone
- Electronic Bracelet

Typical Application

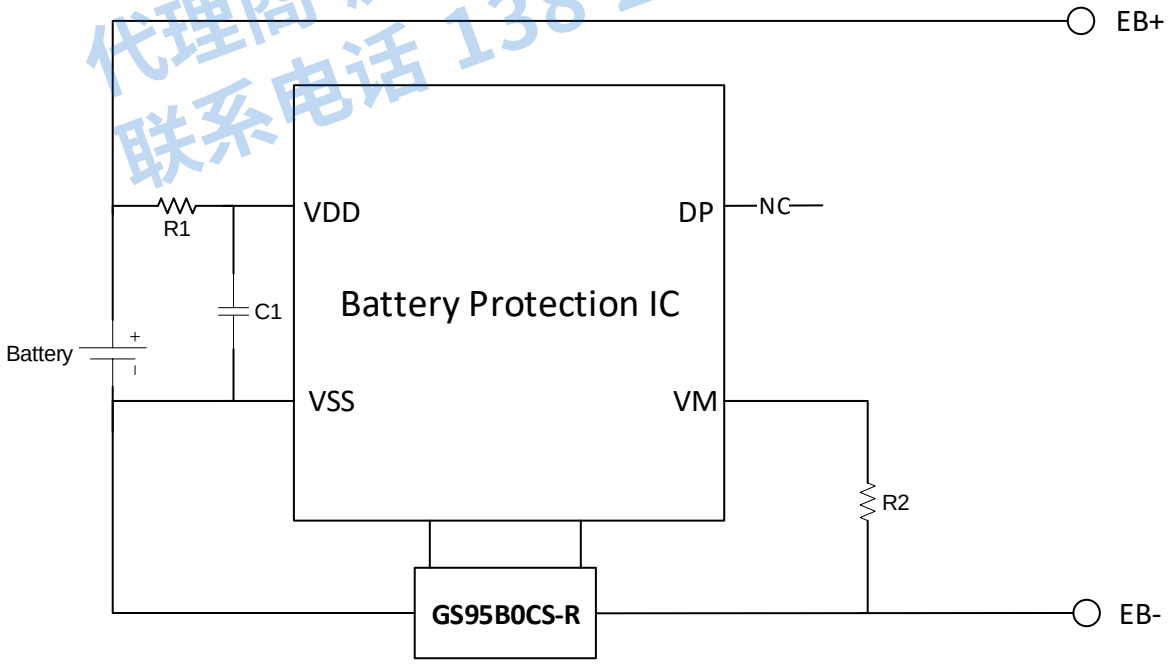


Figure 1 Application of GS95B0CS-R used in battery pack

Function Block Diagram

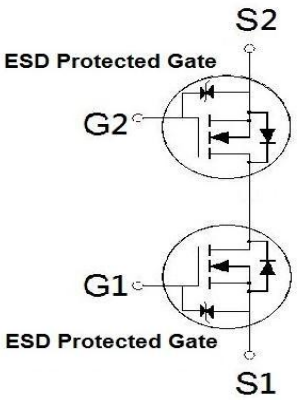


Figure 2 Function Block Diagram

Pin Configuration

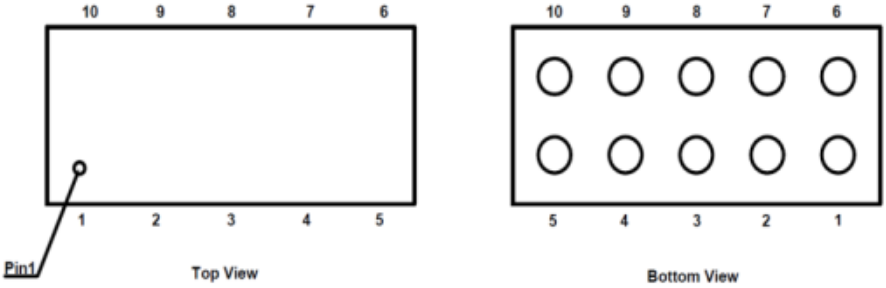


Figure 3 WLCSP 3.34x1.44

Pin Descriptions

No.	Name	I/O type	Description
1	S1	I/O	Source1
2	S1	I/O	Source1
3	G1	I	Gate1
4	S1	I/O	Source1
5	S1	I/O	Source1
6	S2	I/O	Source2
7	S2	I/O	Source2
8	G2	I	Gate2
9	S2	I/O	Source2
10	S2	I/O	Source2

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

PARAMETER / TEST CONDITIONS	SYMBOL	LIMITS	UNITS
Source-Source Voltage	V_{SSS}	30	V
Gate-Source Voltage	V_{GSS}	±20	V
Continuous Source Current	I_S	14	A
Pulsed Source Current[1]	I_{SP}	76	A
Total Dissipation	P_T	2.5	W
Thermal Resistance[1]	$R_{\theta JA}$	52	°C / W
Operating Junction & Storage Temperature Range	Tj & Tstg	-55~150	°C

[1]The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25℃

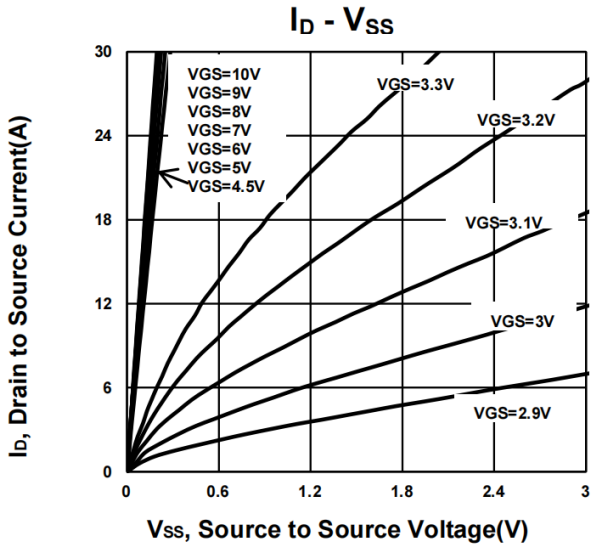
Electrical Characteristics (T_J=25°C Unless Otherwise Noted)

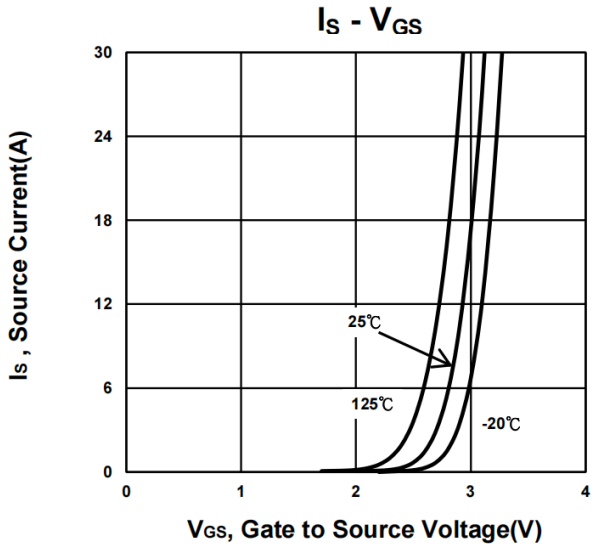
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS MIN	LIMITS TYP	LIMITS MAX	UNITS
STATIC						
Source-Source Breakdown Voltage	$V_{(BR)SSS}$	VGS = 0V, IS =250uA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	VSS = 10V , IS = 250uA	1.3	1.8	2.3	
Gate-Source Leakage	I_{GSS}	VSS = 0V, VGS = ±16V			±10	uA
Zero Gate Voltage Source Current	I_{SSS}	VSS = 30V , VGS = 0V			1	uA
Drain-Source On-State Resistance[1]	$R_{SS(ON)}$	VGS = 10V, IS = 7A	4.7	6.2	7.8	mΩ
		VGS = 4.5V, IS = 7A	6.4	8.5	11	
Forward Transfer Admittance[1]	g_{fs}	VSS = 5V, IS =7A		45		S
DYNAMIC						
Input Capacitance	C_{iss}	VGS = 0V, VDS = 15V, f = 1MHz		433		pF
Output Capacitance	C_{oss}			195		
Reverse Transfer Capacitance	C_{rss}			21		

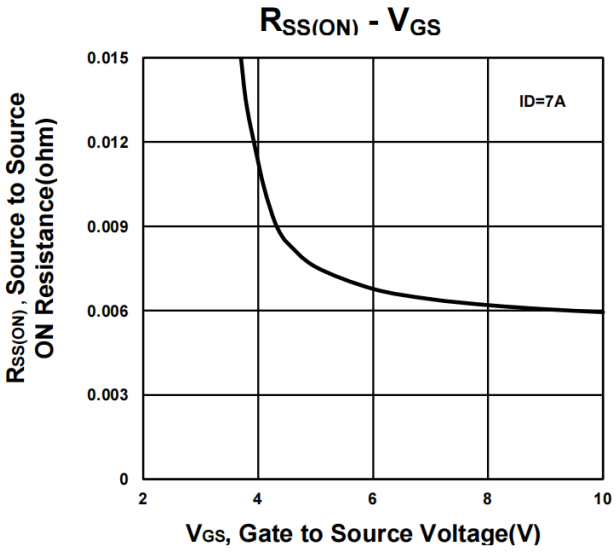
Total Gate Charge[2]	Q_g	V_{SS} = 15V , V_{GS} = 10V， I_S = 7A		27		nC
Turn-On Delay Time[2]	$t_{d(on)}$	V_{SS} = 15V, $I_S \cong$ 7A,V_{GS} = 10V		0.57		uS
Rise Time[2]	t_r			0.83		
Turn-Off Delay Time[2]	$t_{d(off)}$			1.71		
Fall Time[2]	t_f			1.85		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Forward Source-Source Voltage[1]	V_F	I_S = 7A, V_{GS} = 0V		0.72	1.2	V

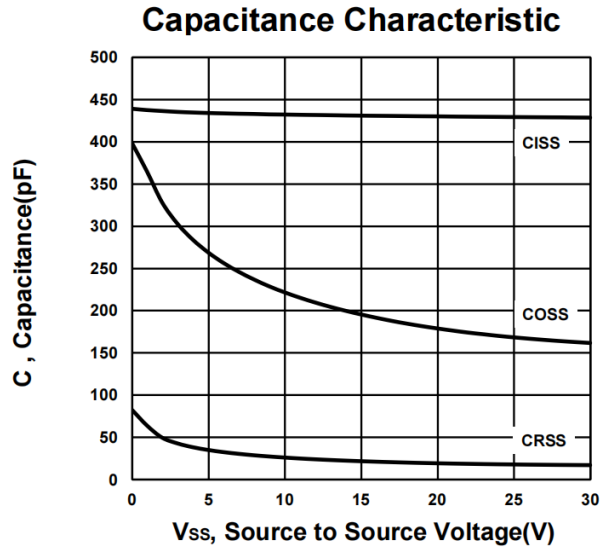
[1]Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

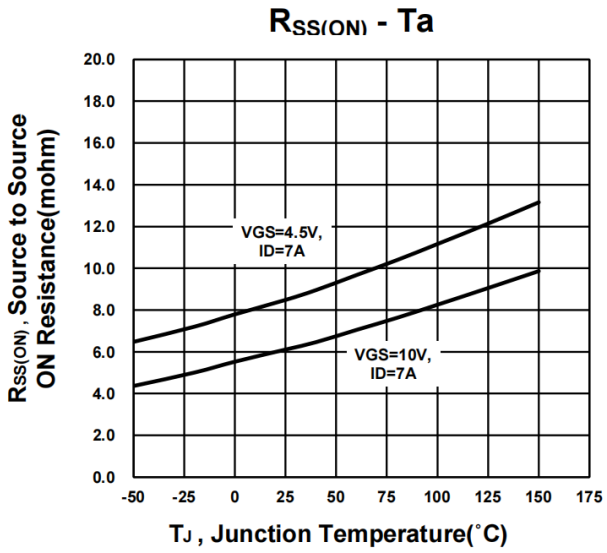
[2]Independent of operating temperature.

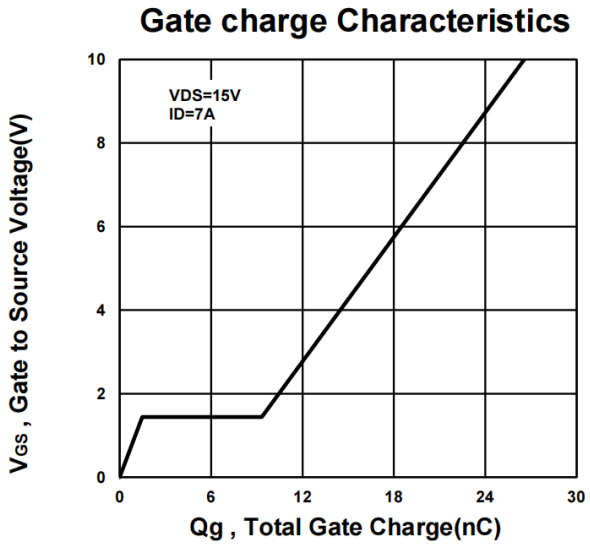

I_D - V_{SS}
I_D, Drain to Source Current(A)
V_{SS}, Source to Source Voltage(V)
VGS=10V
VGS=9V
VGS=8V
VGS=7V
VGS=6V
VGS=5V
VGS=4.5V
VGS=3.3V
VGS=3.2V
VGS=3.1V
VGS=3V
VGS=2.9V
0
6
12
18
24
30
0
0.6
1.2
1.8
2.4
3

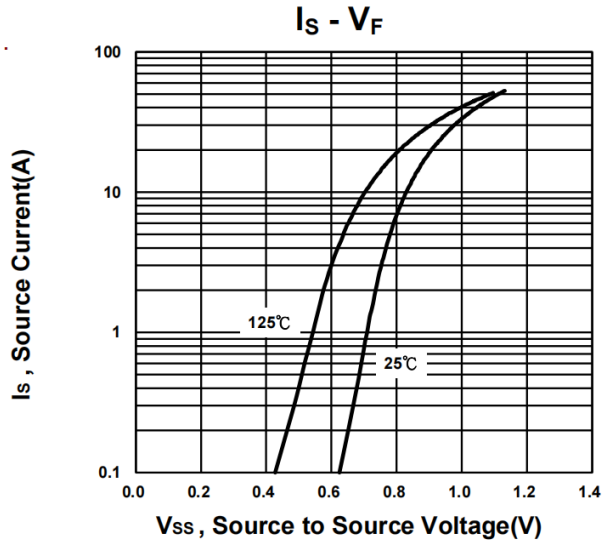

I_S - V_{GS}
I_S , Source Current(A)
V_{GS}, Gate to Source Voltage(V)
25℃
125℃
-20℃
0
6
12
18
24
30
0
1
2
3
4

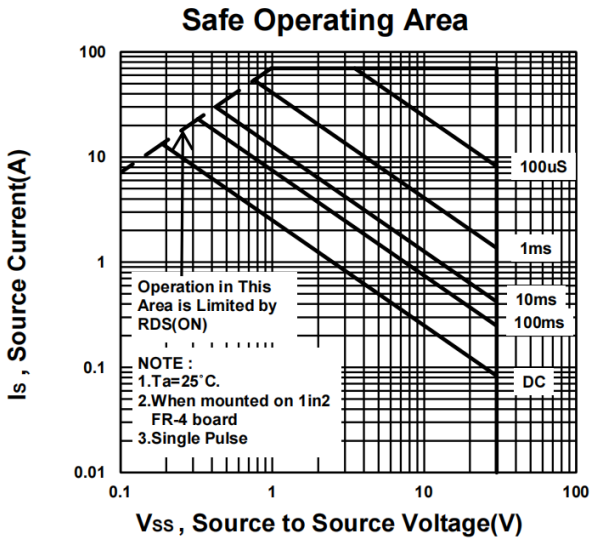

$R_{SS(ON)}$ - V_{GS}
$R_{SS(ON)}$, Source to Source ON Resistance(ohm)
V_{GS}, Gate to Source Voltage(V)
ID=7A
0
0.003
0.006
0.009
0.012
0.015
2
4
6
8
10

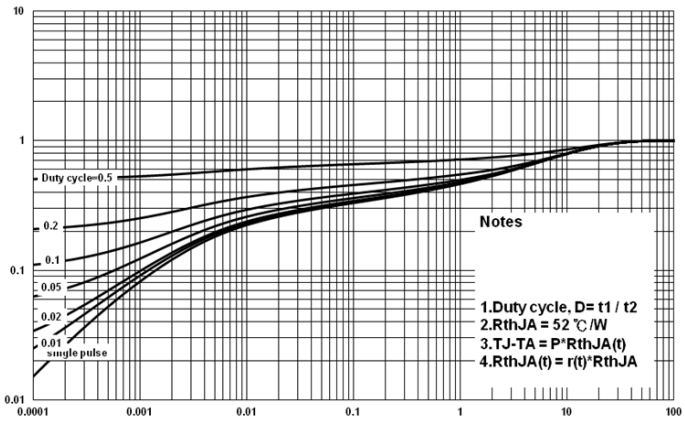

Capacitance Characteristic
C , Capacitance(pF)
V_{SS}, Source to Source Voltage(V)
CISS
COSS
CRSS
0
50
100
150
200
250
300
350
400
450
500
0
5
10
15
20
25
30

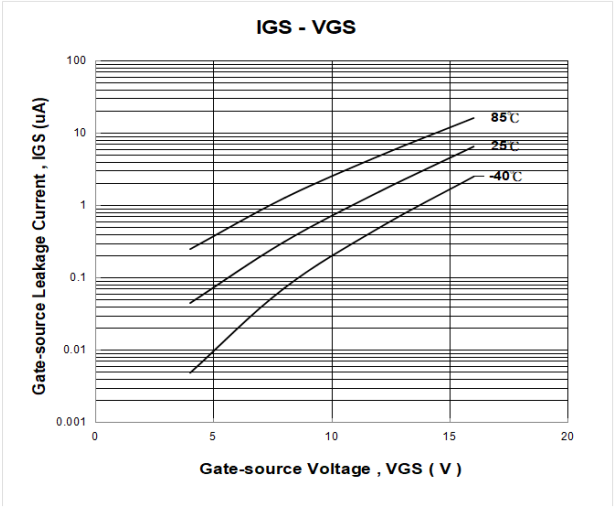

RSS(ON) - Ta
RSS(ON), Source to Source ON Resistance(mohm)
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
VGS=4.5V, ID=7A
VGS=10V, ID=7A
-50 -25 0 25 50 75 100 125 150 175
TJ , Junction Temperature(˚C)


Gate charge Characteristics
VGS , Gate to Source Voltage(V)
10
8
6
4
2
0
VDS=15V
ID=7A
0 6 12 18 24 30
Qg , Total Gate Charge(nC)

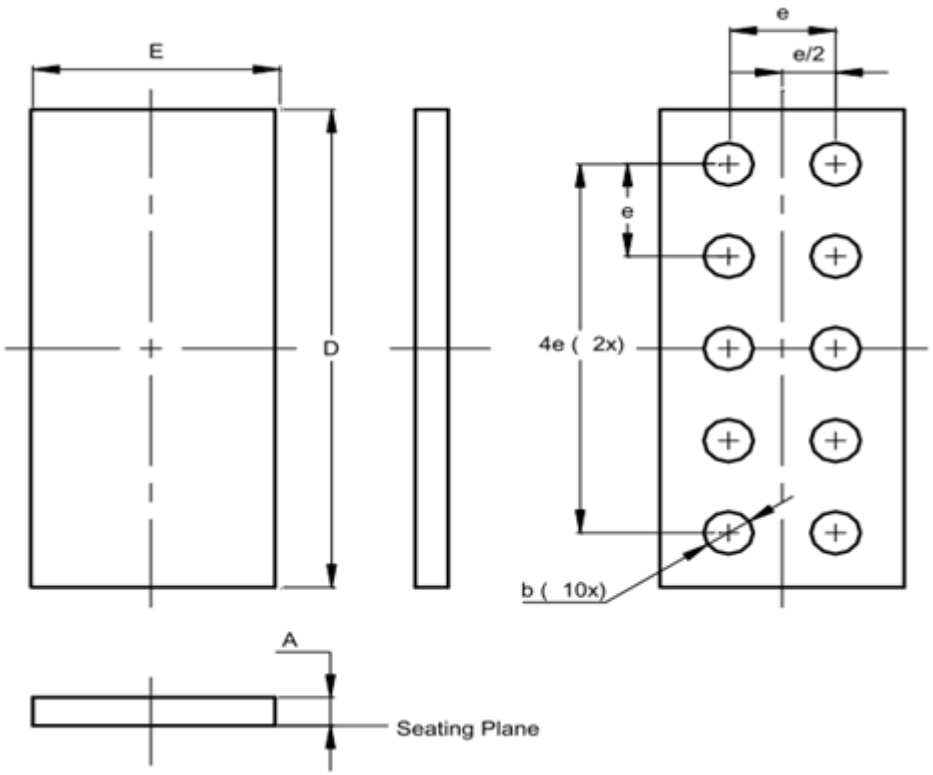

IS - VF
IS , Source Current(A)
100
10
1
0.1
125℃
25℃
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4
VSS , Source to Source Voltage(V)


Safe Operating Area
IS , Source Current(A)
100
10
1
0.1
0.01
100uS
1ms
10ms
100ms
DC
Operation in This Area is Limited by RDS(ON)
NOTE :
1.Ta=25˚C.
2.When mounted on 1in2 FR-4 board
3.Single Pulse
0.1 1 10 100
VSS , Source to Source Voltage(V)


10
1
0.1
0.01
0.0001
0.001
0.01
0.1
1
10
100
Duty cycle=0.5
0.2
0.1
0.05
0.02
0.01
single pulse
Notes
1.Duty cycle, D= t1 / t2
2.RthJA = 52 ℃/W
3.TJ-TA = P*RthJA(t)
4.RthJA(t) = r(t)*RthJA


IGS - VGS
Gate-source Leakage Current , IGS (uA)
100
10
1
0.1
0.01
0.001
0
5
10
15
20
85℃
25℃
-40℃
Gate-source Voltage , VGS (V)

Package Dimensions, WLCSP 3.34x1.44



Symbol	Dimensions in Millimeters		
	Min.	Typ.	Max.
A	0.18	0.2	0.22
øb	0.27	0.3	0.33
D	3.31	3.34	3.37
E	1.41	1.44	1.47
e	-	0.65	-

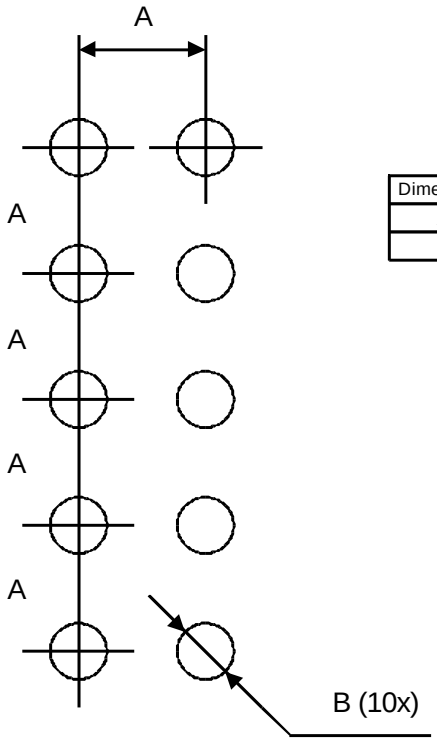
Note

1.Min.: Minimum dimension specified.

2.Max.: Maximum dimension specified.

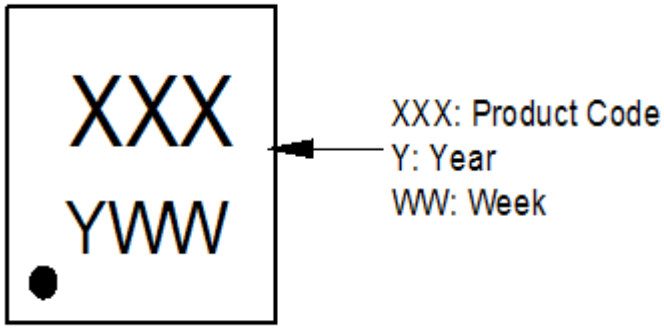
3.Typ.: Typical dimension specified for reference.

Recommend Footprint

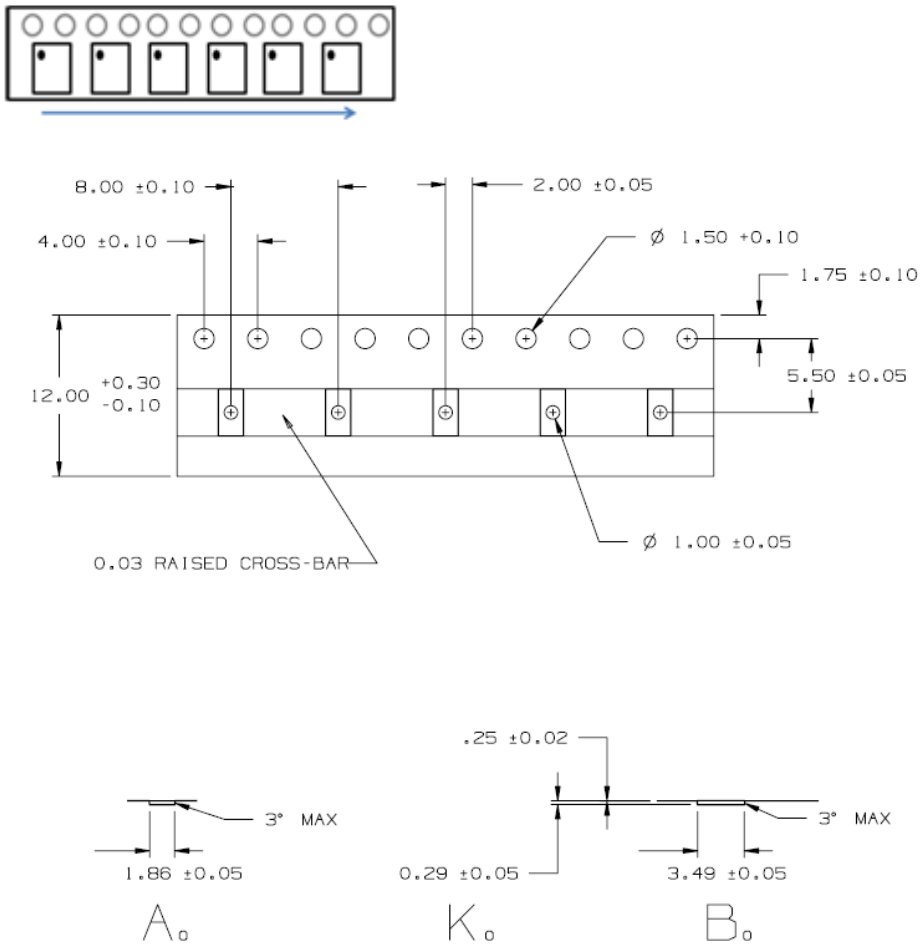


Dimensions	unit/mm
A	0.65
B	0.3

A. Marking Information(Product Code：A25)



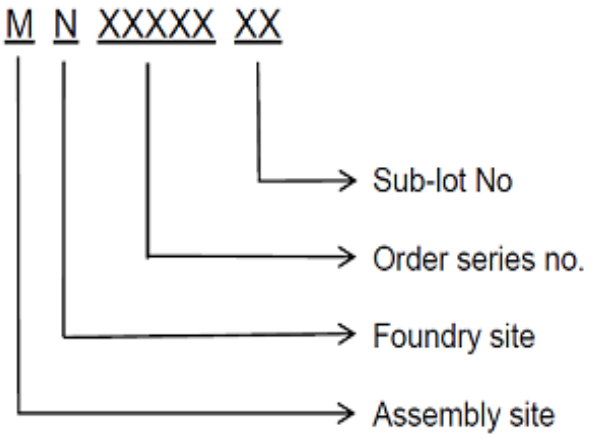
B. Tape&Reel Information:1500pcs/Reel



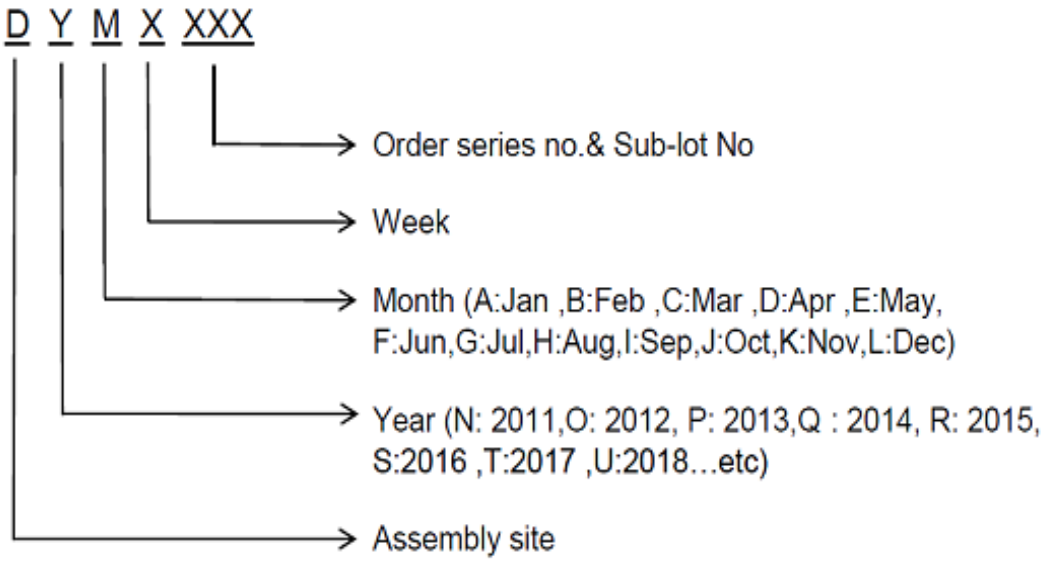
Note：All Dimension in millimeter

C. Lot No. & Date Code Rule

1.Lot No.



2.Date Code



D.Label rule

Label content

1	Label Size	30 * 90 mm
2	Font style	Times New Roman or Arial （或可区分英文”O”和数字”0”，”G和”Q”的字型即可）
3	U-NIKC	Height: 4 mm
4	Package	Height: 2 mm
5	Date	Height: 2 mm Shipping date: YYYY/MM/DD, ex. 2008/09/12
6	Device	Height: 3 mm (Max: 16 Digit)
7	Lot	Height: 3 mm (Max: 9 Digit) Sub lot
8	D/C	Height: 3 mm (Max: 7 Digit)
9	QTY	Height: 3 mm (Max: 6 Digit) Thousand mark is no needed
10	RoHS label	RoHS long axis: 12 mm minor axis:6 mm bottom color: White Font color: Black Font style: Arial
11	Halogen Free label	G Diameter: 10 mm bottom color: Green Font color: Black Font style: Arial
12	Scan information	Device / Lot / D/C / QTY , Insert “ / “ between every parts. for example: P3055LDG/G12345601/GGG2301/2000 DPI (Dots per inch): Over 300 dpi Code : Code 128 Height: 6 mm at least

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