Features

- Input Voltage up to 23V
- MOSFET Turn on Resistor RSS(ON) =2.70mohm(Avg)@Vgs=3.8V
- Drain to Drain MOSFET Module
- With ESD Protection
- Continuous Current=24A
- Green Product (RoHS, Lead-Free, Halogen-Free Compliant)

General Description

The GS95B6CS-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

代理商 威尔迈 www.visvie.com
联系电话 138 2526 5270

Typical Application

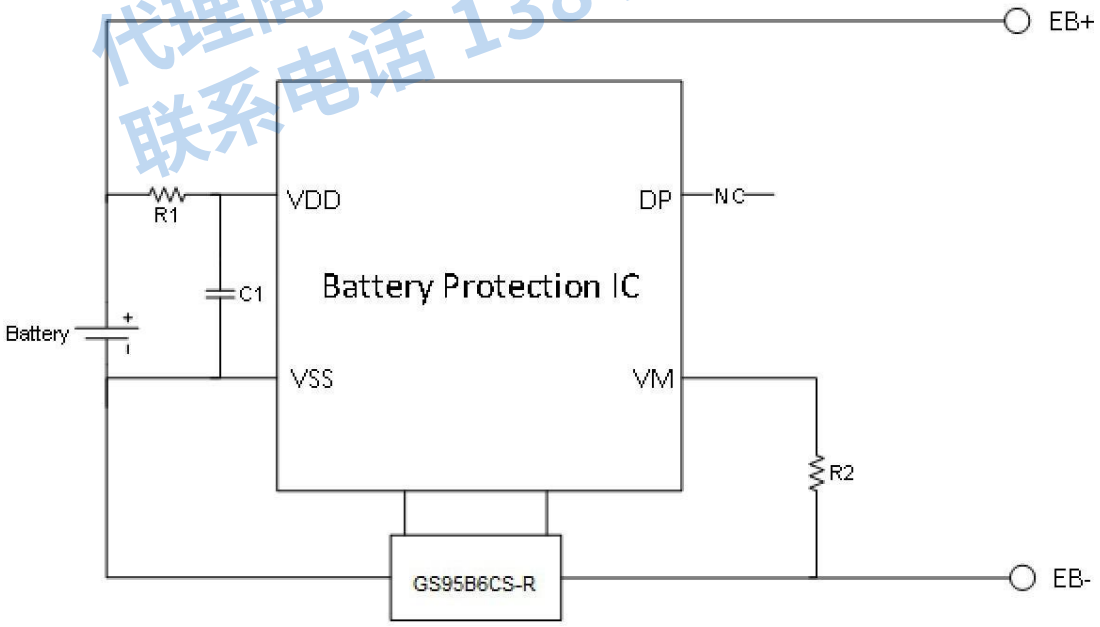


Figure 1 Application of GS95B6CS-R used in battery pack

Function Block Diagram

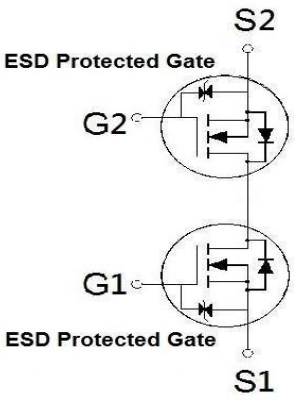


Figure 2 Function Block Diagram

Pin Configuration

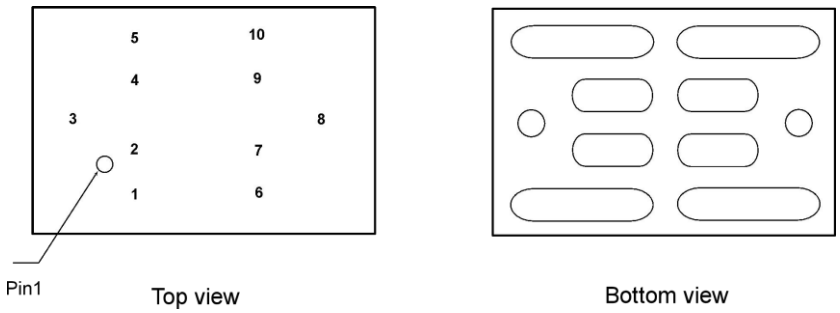


Figure 3 WLCSP 3.2x2.1

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}	23	V
Gate-Source Voltage	V_{GSS}	±12	V
Continuous Source Current	I_S	23	A
Pulsed Source Current[1]	I_{SP}	185	A
Total Dissipation	P_T	2	W
Thermal Resistance[1]	$R_{\theta JA}$	58	° 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℃

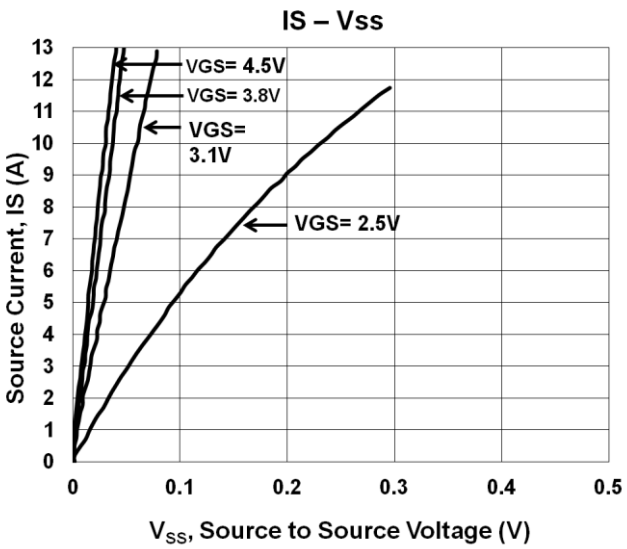
Electrical Characteristics (T_J=25°C Unless Otherwise Noted)

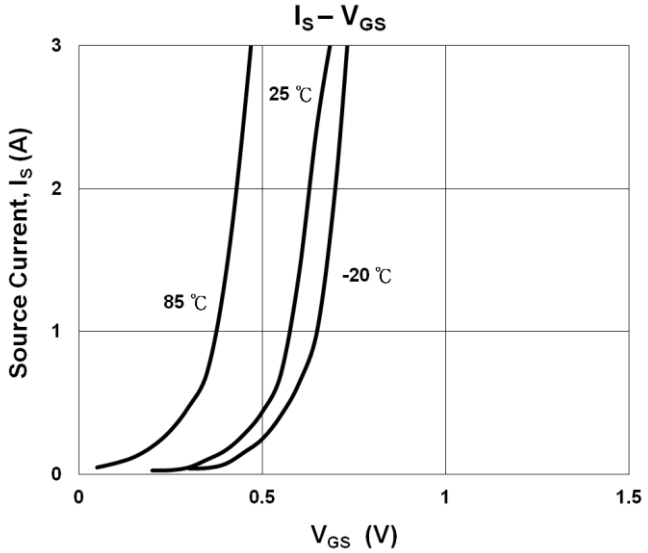
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Source-Source Breakdown Voltage	$V_{(BR)SSS}$	VGS = 0V, IS =250uA	23			V
Gate Threshold Voltage	$V_{GS(th)}$	VSS = 10V, IS = 250uA		0.9		
Gate-Source Leakage	I_{GSS}	VSS = 0V, VGS = ±8V			±10	uA
		VSS = 0V, VGS = ±5V			±1	
Zero Gate Voltage Source Current	I_{SSS}	VSS = 23V , VGS = 0V			1	uA
Drain-Source On-State Resistance[1]	$R_{SS(ON)}$	VGS = 4.5V, IS = 6.5A		2.50	3.30	mΩ
		VGS = 3.8V, IS = 6.5A		2.70	3.50	
		VGS = 3.1V, IS = 6.5A		3.10	4.60	
		VGS = 2.5V, IS = 6.5A		3.90	7.80	

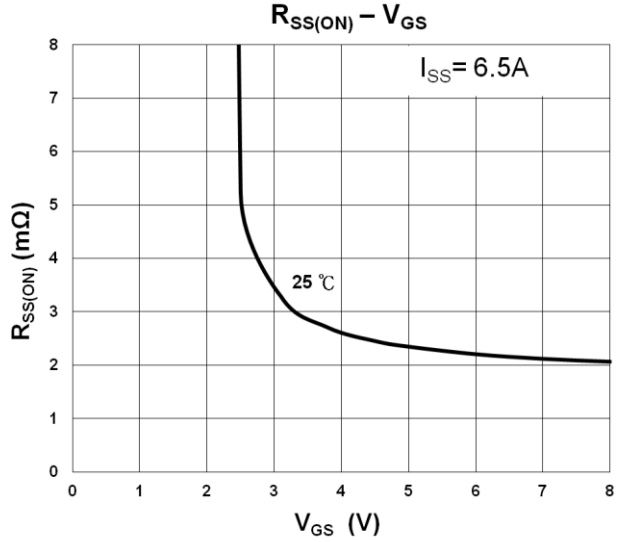
DYNAMIC						
Input Capacitance	C_{iss}	VGS = 0V, VDS = 12V, f = 1MHz		890		pF
Output Capacitance	C_{oss}			388		
Reverse Transfer Capacitance	C_{rss}			20		
Total Gate Charge[2]	Q_g	VSS = 12V, VGS = 4.5V, IS = 10A		40		nC
Gate-Source Charge	Q_{gs}			6		
Gate-Drain Charge	Q_{gd}			13		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{SS} = 6V, $I_S \cong$ 6A, V_{GS} = 4.5V		1.2		uS
Rise Time[2]	t_r			3.1		
Turn-Off Delay Time[2]	$t_{d(off)}$			5.4		
Fall Time[2]	t_f			7.6		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Forward Source-Source Voltage[1]	V_F	I_S = 7A, V_{GS} = 0V		0.6		V

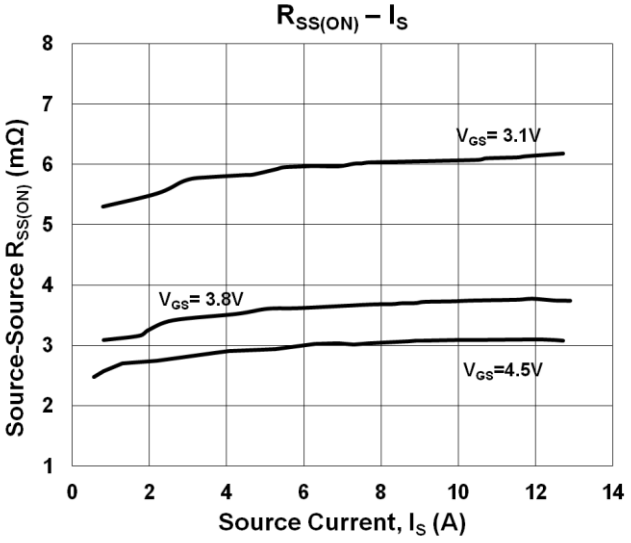
[1]Pulse test : Pulse Width ≤ 10 μsec, Duty Cycle ≤ 1%.

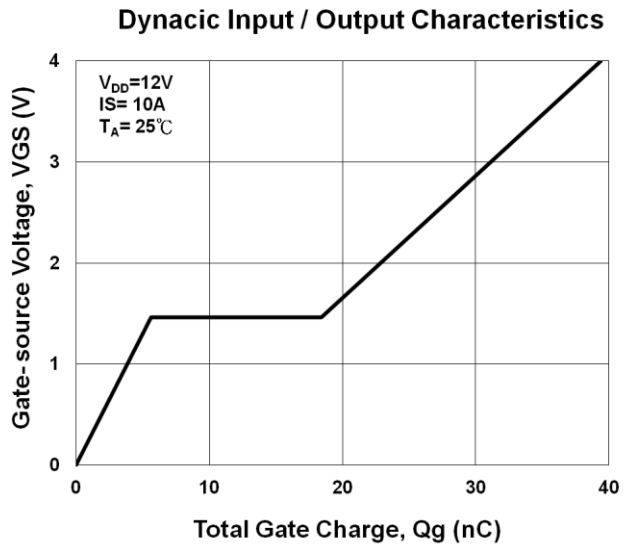
[2]Independent of operating temperature.

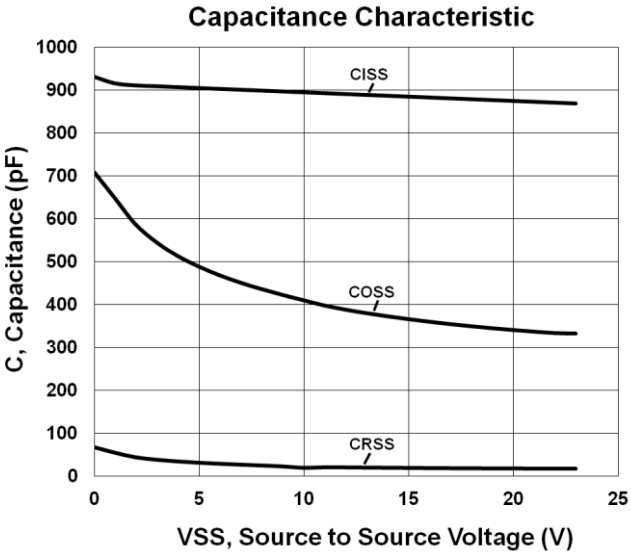

IS – Vss
VGS= 4.5V
VGS= 3.8V
VGS= 3.1V
VGS= 2.5V
Source Current, IS (A)
VSS, Source to Source Voltage (V)

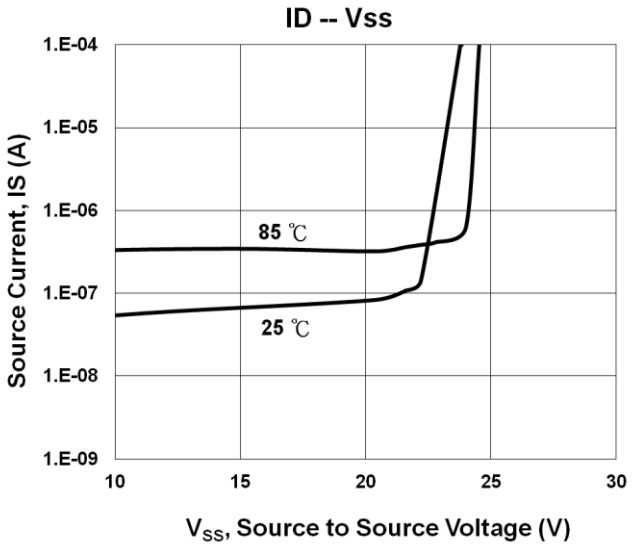

IS – VGS
25 ℃
85 ℃
-20 ℃
Source Current, IS (A)
VGS (V)

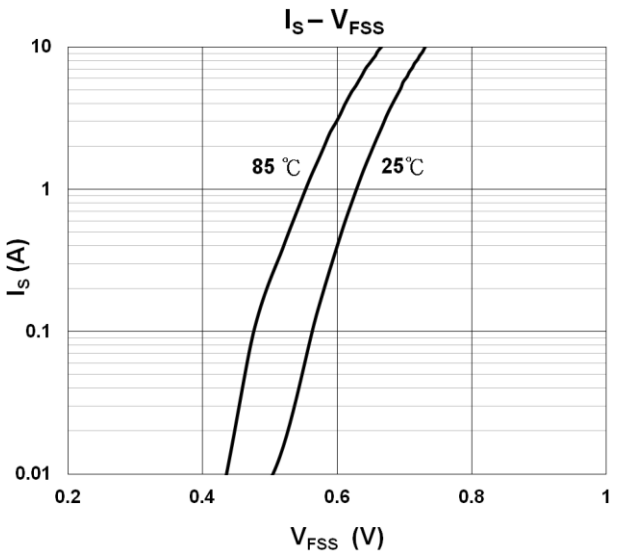

RSS(ON) – VGS
ISS= 6.5A
25 ℃
RSS(ON) (mΩ)
VGS (V)

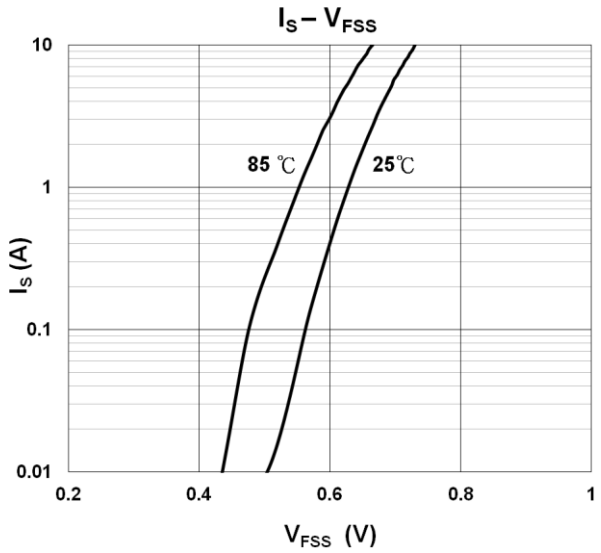

RSS(ON) – IS
VGS= 3.1V
VGS= 3.8V
VGS=4.5V
Source-Source RSS(ON) (mΩ)
Source Current, IS (A)

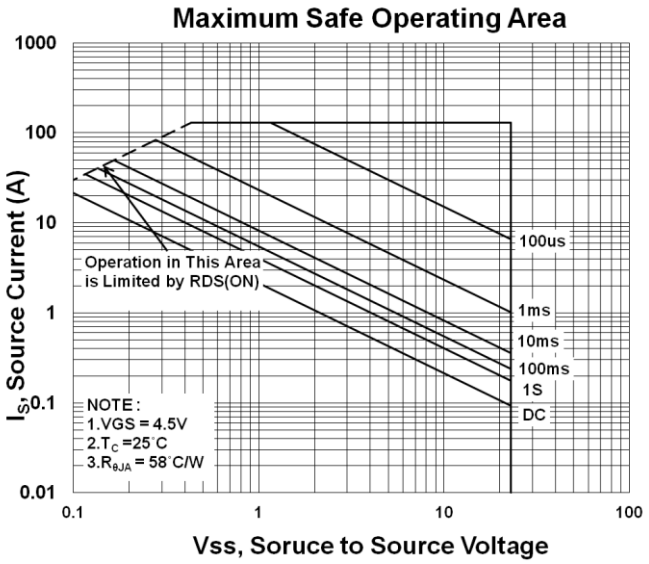

Dynacic Input / Output Characteristics
VDD=12V
IS= 10A
TA= 25℃
Gate-source Voltage, VGS (V)
Total Gate Charge, Qg (nC)

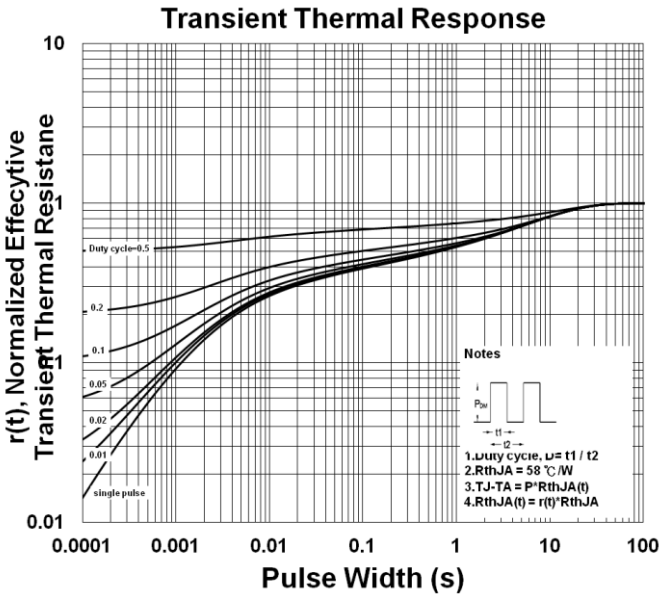

Capacitance Characteristic
CISS
COSS
CRSS
C, Capacitance (pF)
VSS, Source to Source Voltage (V)


ID -- Vss
Source Current, IS (A)
1.E-04
1.E-05
1.E-06
1.E-07
1.E-08
1.E-09
85 ℃
25 ℃
10
15
20
25
30
VSS, Source to Source Voltage (V)

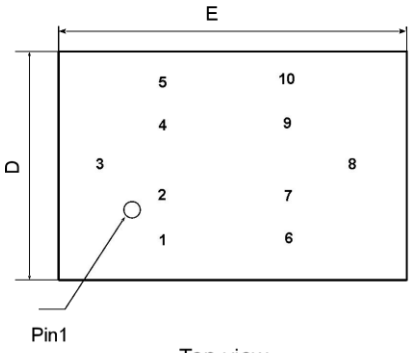

IS – VFSS
IS (A)
10
1
0.1
0.01
85 ℃
25℃
0.2
0.4
0.6
0.8
1
VFSS (V)


IS – VFSS
IS (A)
10
1
0.1
0.01
85 ℃
25℃
0.2
0.4
0.6
0.8
1
VFSS (V)

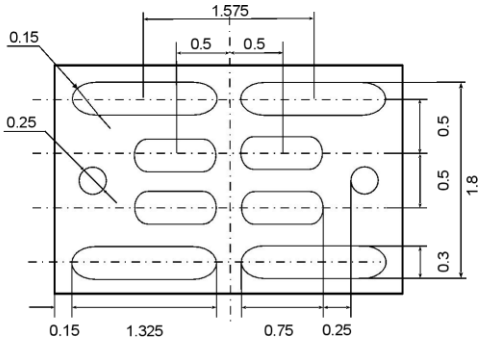

Maximum Safe Operating Area
IS, Source Current (A)
1000
100
10
1
0.1
0.01
Operation in This Area
is Limited by RDS(ON)
100us
1ms
10ms
100ms
1S
DC
NOTE:
1.VGS = 4.5V
2.TC =25°C
3.RθJA = 58°C/W
0.1
1
10
100
Vss, Soruce to Source Voltage


Transient Thermal Response
r(t), Normalized Effecytive Transient Thermal Resistane
10
1
0.1
0.01
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 = 58 ℃/W
3.TJ-TA = P*RthJA(t)
4.RthJA(t) = r(t)*RthJA
0.0001
0.001
0.01
0.1
1
10
100
Pulse Width (s)

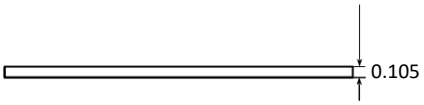
Package Dimensions, WLCSP 3.2x2.1



Top view



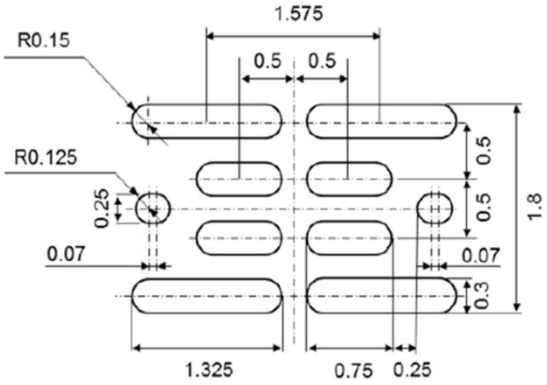
Bottom view



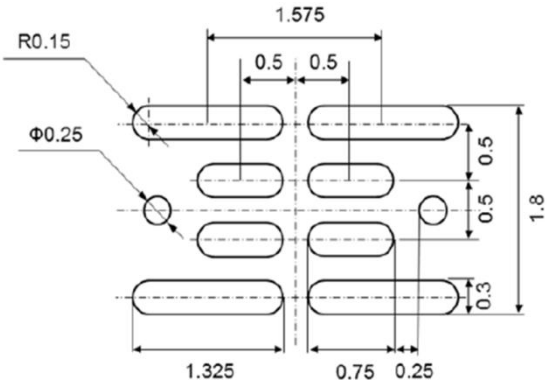
Side view

Unit : mm

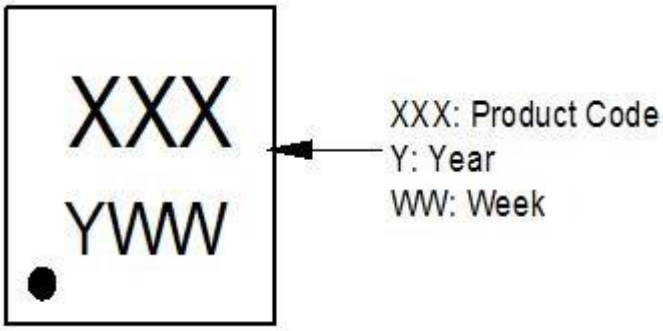
LAND PATTERN (Reference) Unit: mm



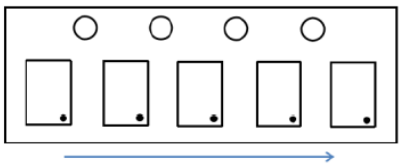
STENCIL PATTERN (Reference) Unit: mm



A. Marking Information(Product Code：A30)

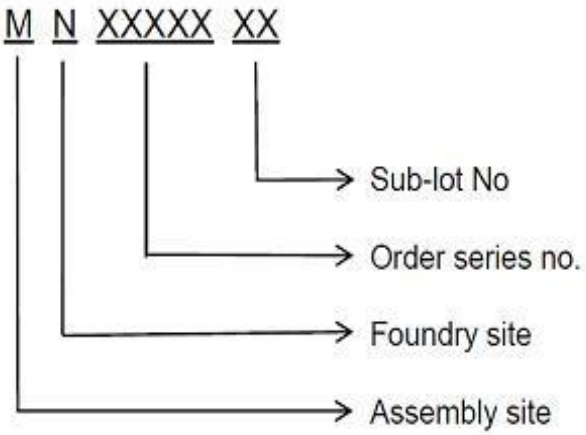


B. Tape&Reel Information：3000pcs/Reel

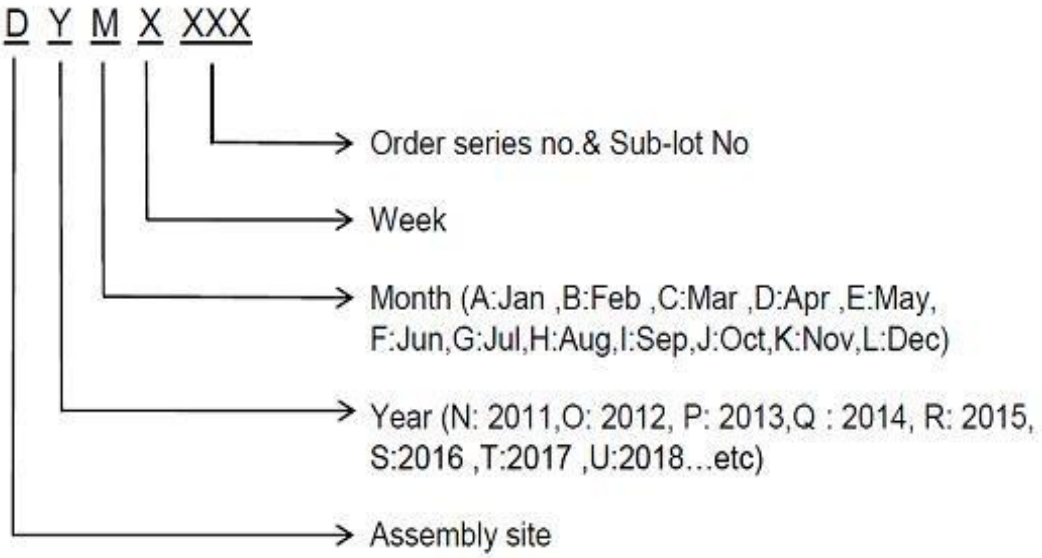


C. Lot No. & Date Code Rule

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”0”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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