GOSTONE

RoHS COMPLIANT

GTD1205A

Dual N-channel Power MOSFET:
12V, 1.3mohm, 37.3A

Product Summary

VSSS	VGSS	RSS(ON) TYP/MAX	IS MAX
12V	± 8V	1.00/1.30 mΩ@VGS=4.5V 1.10/1.45 mΩ@VGS=3.8V 1.25/2.00 mΩ@VGS=3.1V 1.60/3.20 mΩ@VGS=2.5V	37.3A

Features

- ❖CSP (Chip Size Package)
- ❖Halogen-Free / RoHS Compliant
- ❖2.5V Drive Low Source-Source On-State Resistance
- ❖Gate Resistor Installed Common-Drain Type MOSFET
- ❖ESD Protection Diode Installed (Gate-Source)

Marking Symbol Code

❖ Laser Marking Device Code: I

GS : Gostone
I : Marking Device Code
G : Factory Code
Y : Year Code
W : Week Code
L : LOT Code
○: Pin#1 Identifier

Application

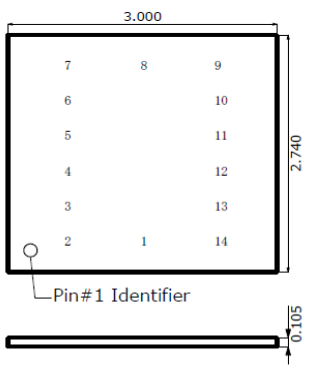
❖ Lithim-Ion Secondary Battery Protection Circuits

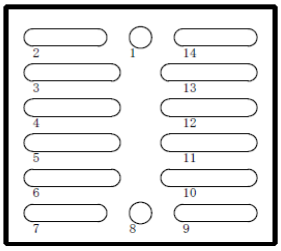
Form

❖ Tape & Reel Embossed Type: 5,000pcs / reel

☐ **Pin Assignment**

Unit: mm



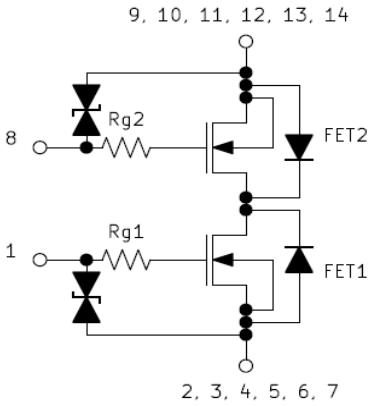


FET1: 2,3,4,5,6,7: Source1, 1: Gate1
FET2: 9,10,11,12,13,14: Source2, 8: Gate2

Absolute Maximum Rating (Ta=25°C)

Parameter		Symbol	Rating	Unit
Source to Source Voltage		VSS	12	V
Gate to Source Voltage		VGS	±8	V
Source Current	DC	IS1 *1	18.7	A
	DC	IS2 *2	37.3	A
	Pulse	ISP *2*3	149	A
Total Dissipation	DC	PD1 *1	0.48	W
	DC	PD2 *2	1.92	W
Junction Temperature		Tj	150	℃
Storage Temperature		Tstg	-55 to +150	℃

☐ **Equivalent circuit**



Thermal Characteristic (Ta=25°C)

Parameter	Symbol	Rating	Unit
Thermal Resistance	Rth *1	260	℃/W
	Rth *2	65	℃/W

Note *1 Mounted on FR4 board (25.4mm x 25.4mm x t1.0mm)
with minimum copper pad (50.6mm2, 36μm thickness copper)
Note *2 Mounted on FR4 board (25.4mm x 25.4mm x t1.0mm)
with maximum copper pad (618.4mm2, 36μm thickness copper)
Note *3 t=10μs, duty cycle ≤ 1%

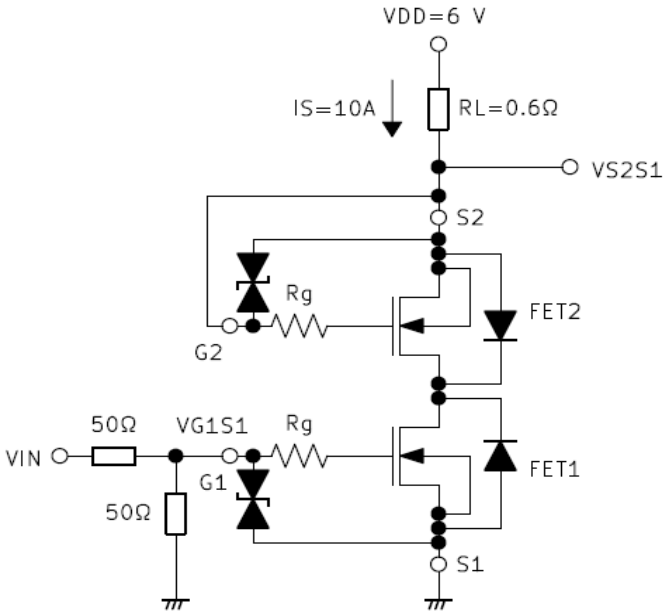
Electrical characteristics (Ta=25°C ± 3°C)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Source-Source Breakdown Voltage	VSSS	IS=1mA, VGS=0V	12.0			V
Zero Gate Voltage Source Current	ISSS	VSS=12V, VGS=0V			1.0	μA
Gate-Source Leakage Current	IGSS1 IGSS2	VGS=±8V, VSS=0V VGS=±5V, VSS=0V			±10 ±1.0	μA
Gate-Source Threshold Voltage	Vth	VSS=6.0V, IS=1.0mA	0.4	0.9	1.4	V
Source-Source On-State Resistance	RSS(on)1 RSS(on)2 RSS(on)3 RSS(on)4	IS=10A, VGS=4.5V IS=10A, VGS=3.8V IS=10A, VGS=3.1V IS=10A, VGS=2.5V	0.70 0.75 0.80 0.90	1.00 1.10 1.25 1.60	1.30 1.45 2.00 3.20	mΩ
Body Diode Forward Voltage	VF(S-S)	IF=10A, VGS=0V		0.7	1.2	V
Input Capacitance *1 Output Capacitance *1 Reverse Transfer Capacitance *1	Ciss Coss Crss	VSS=10V, VGS=0V, f=1kHz		6,540 975 945		pF
Turn-On Delay Time *1 *2 Rise Time *1 *2	td(on) tr	VDD=6V, VGS=0 to 4.0V, IS=10A		1.7 5.2		μs
Turn-Off Delay Time *1 *2 Fall Time *1 *2	td(off) tf	VDD=6V, VGS=4.0 to 0V, IS=10A		4.2 7.4		μs
Total Gate Charge *1 Gate-Source Charge *1 Gate-Drain Charge *1	Qg Qgs Qgd	VDD=6V, VGS=0 to 4.0V, IS=20A		75 12 26		nC
Gate Resistance *1	Rg	f=1MHz		570		Ω

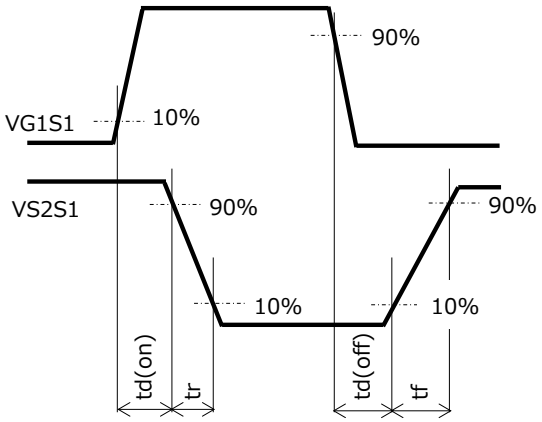
Note *1 Guaranteed by Design

Note *2 Measurement Circuit for Switching Characteristics

FET1 Measurement Circuit for Switching Characteristics td(on), tr, td(off), tf
FET2: Gate-Source Short

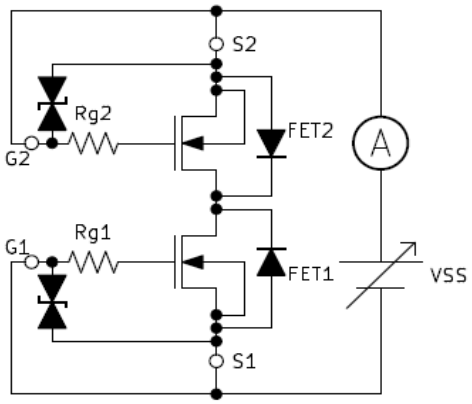


(Definition of Switching Measurement Detection)

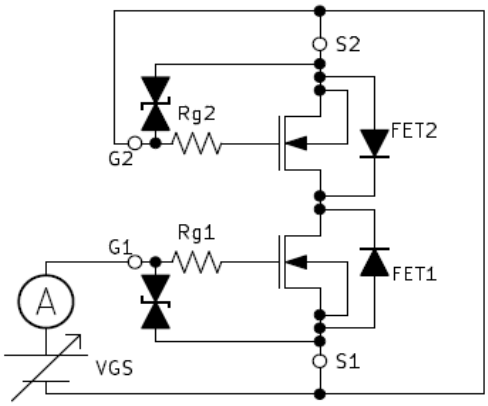


Test Circuit for FET1

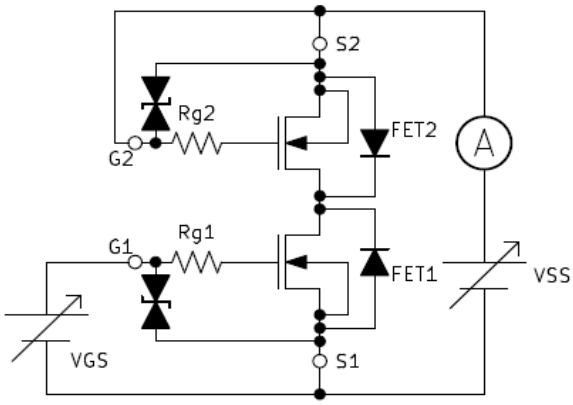
Test Circuit 1
VGSS/ISSS



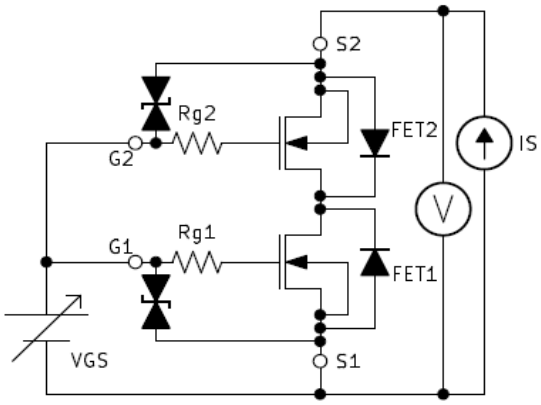
Test Circuit 2
IGSS/1/2



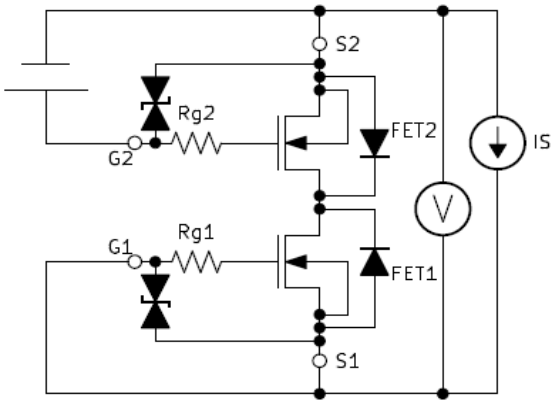
Test Circuit 3
Vth



Test Circuit 4
RSS(on)

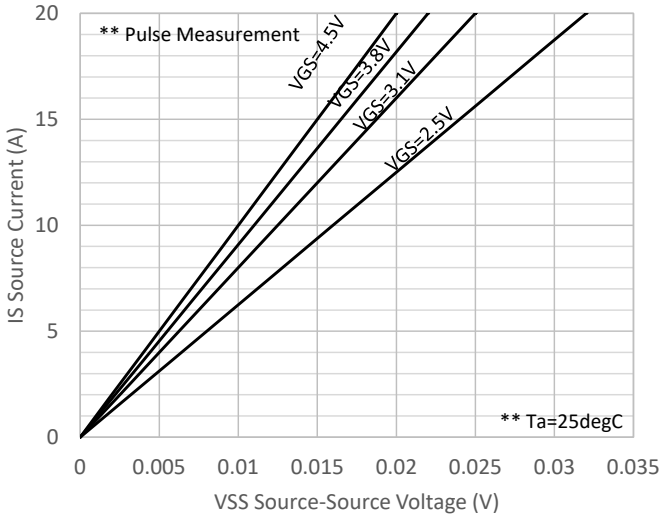


Test Circuit 5
VF(S-S)

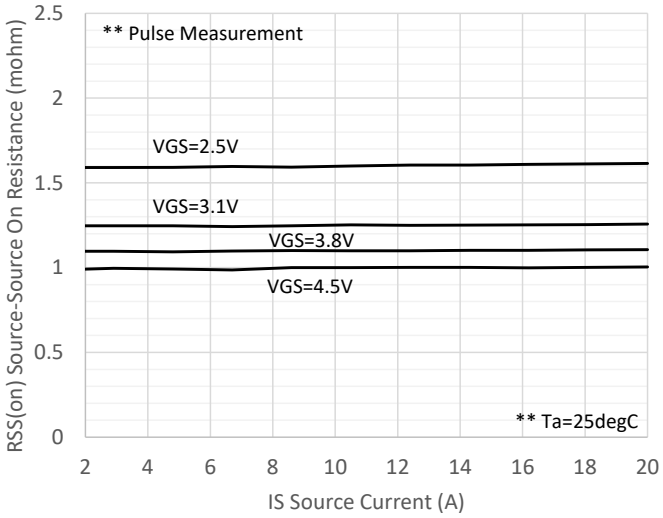


□ Technical data

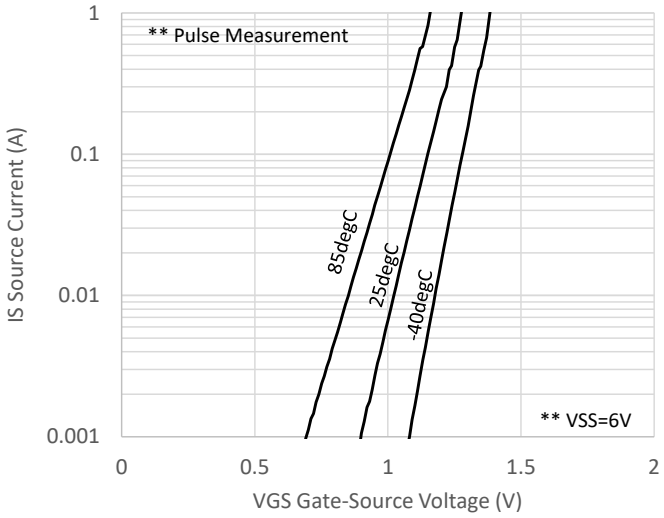
IS to VSS



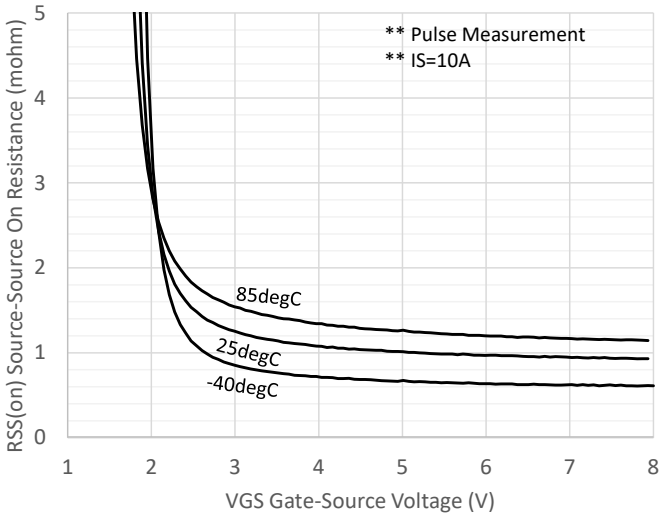
RSS(on) to IS



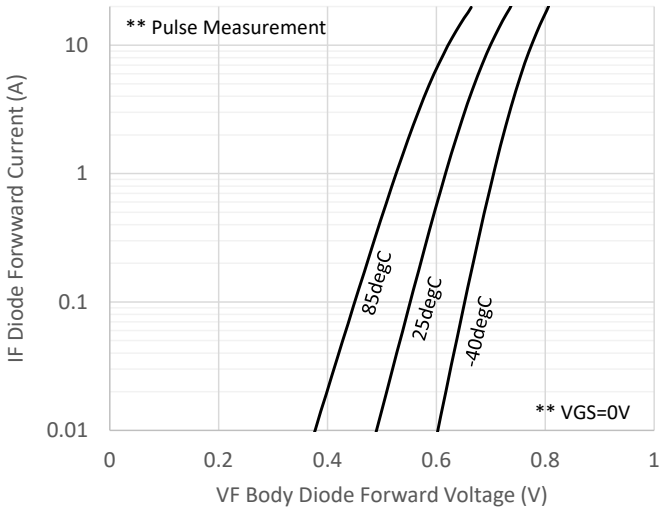
IS to VGS



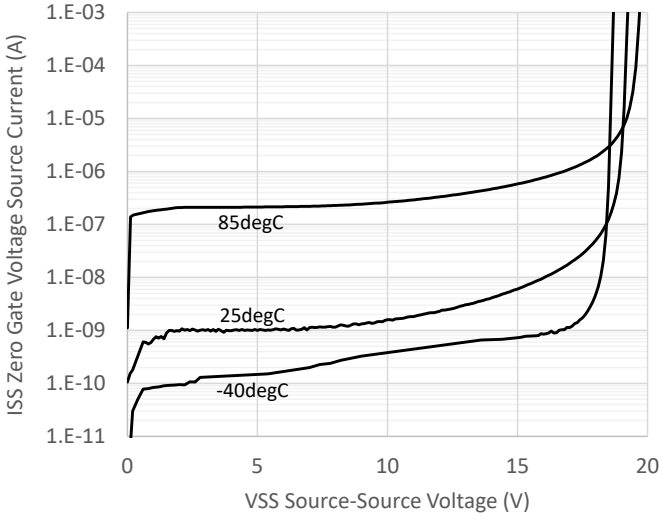
RSS(on) to VGS



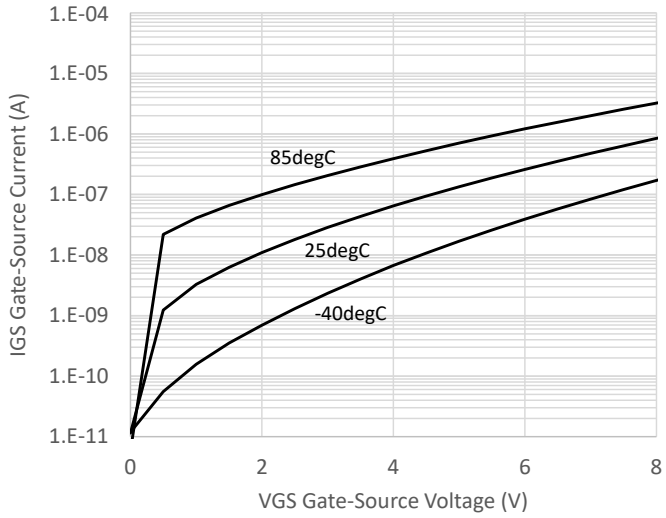
IF to VF



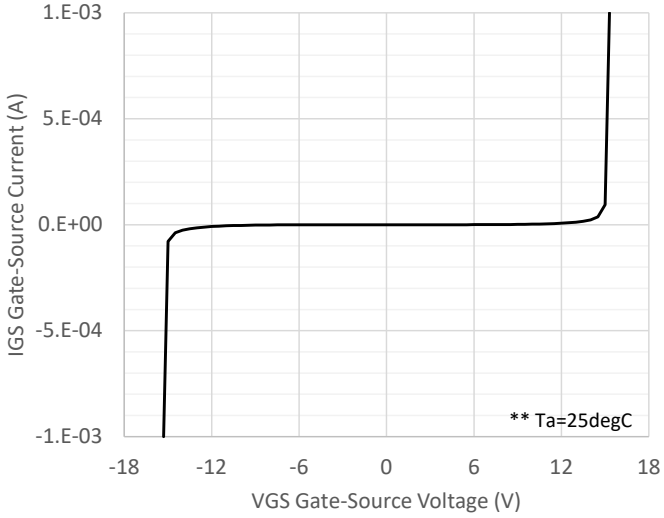
ISS to VSS



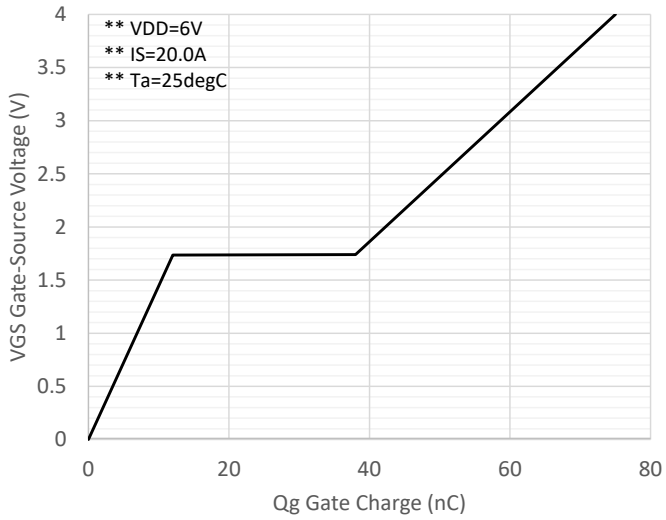
IGS to VGS



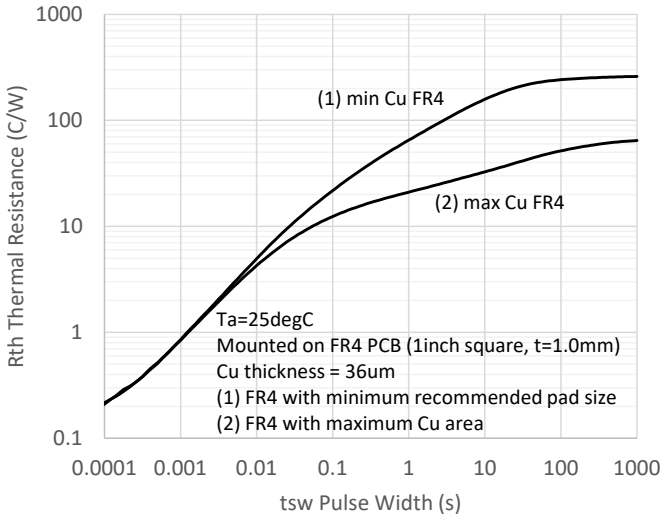
IGS to VGS



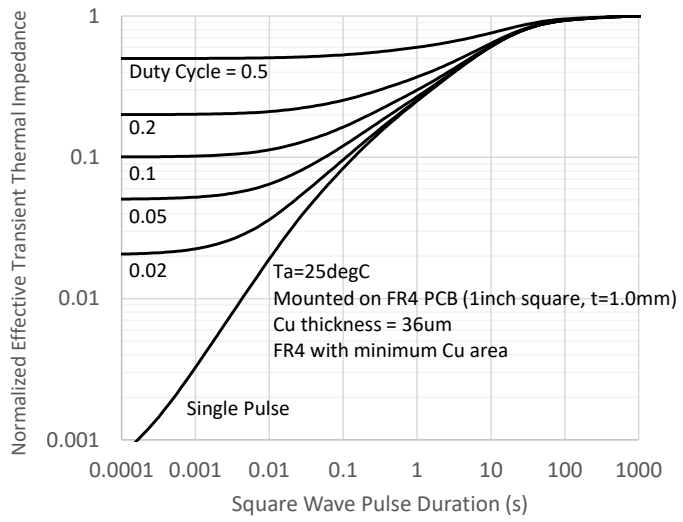
Dynamic Input / Output Characteristics



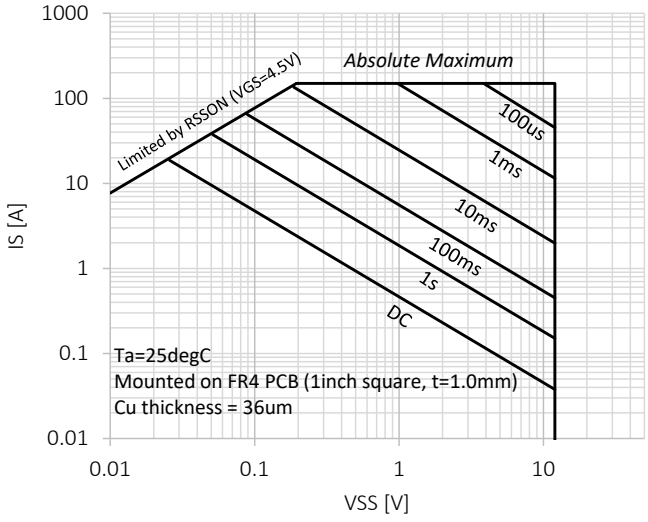
Rth to tsw



Thermal Response

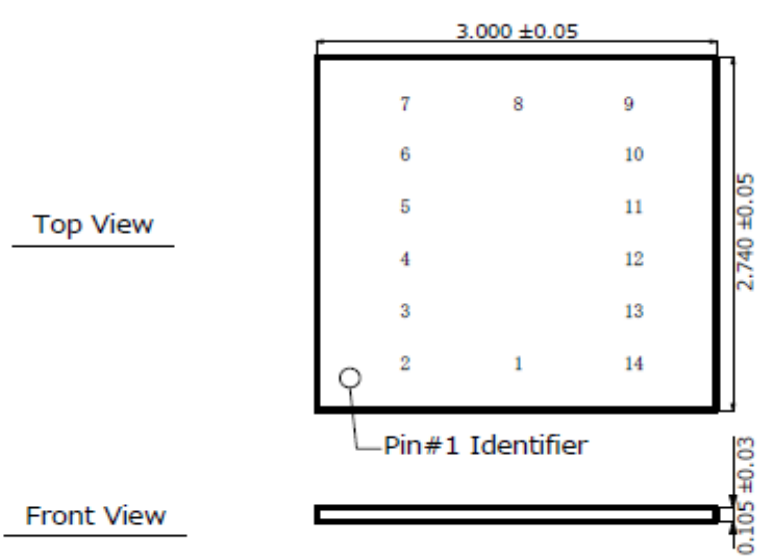


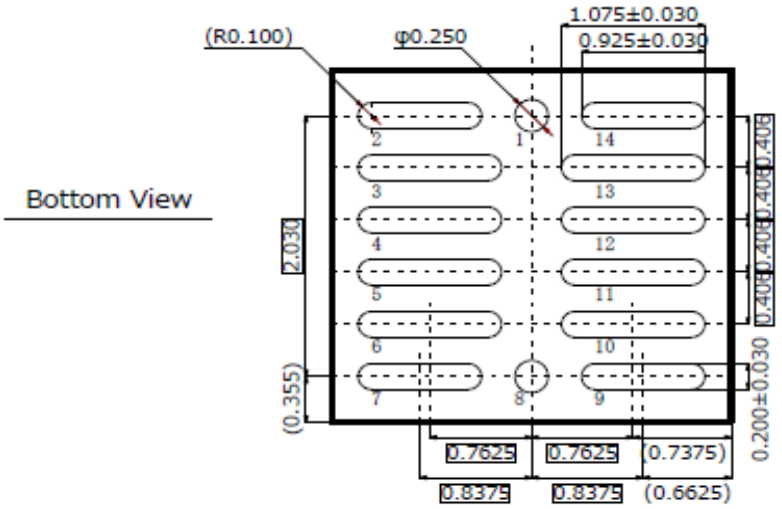
Safe Operating Area



Package outline dimensions

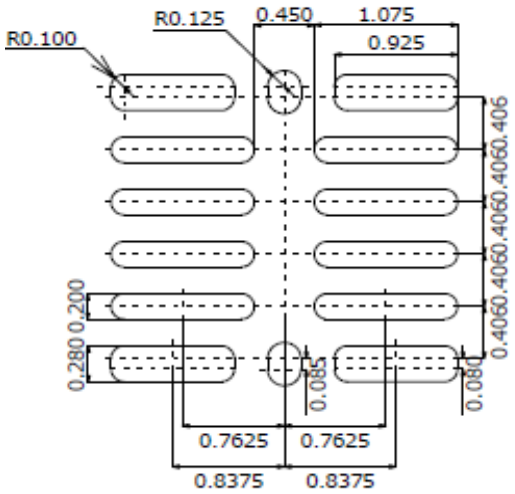
Unit: mm





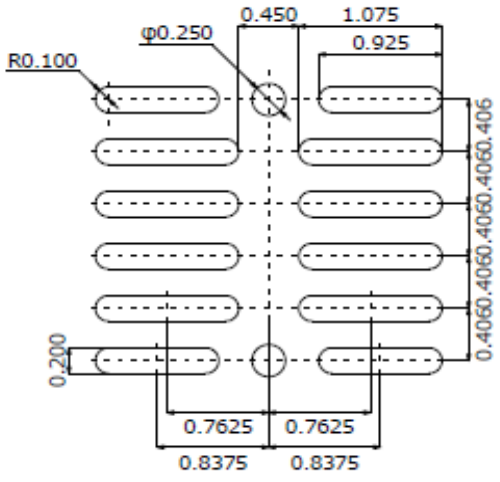
(Reference) Board Land Pattern

Unit: mm



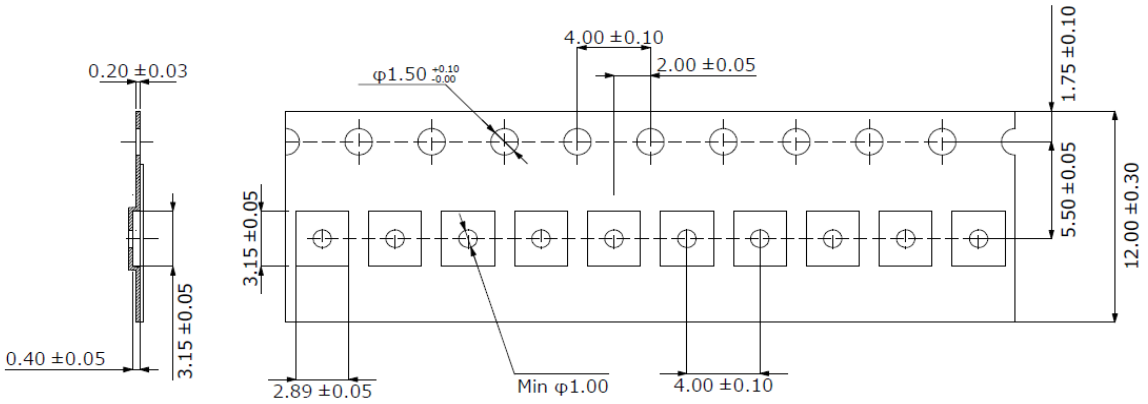
(Reference) Stencil Mask Pattern

Unit: mm

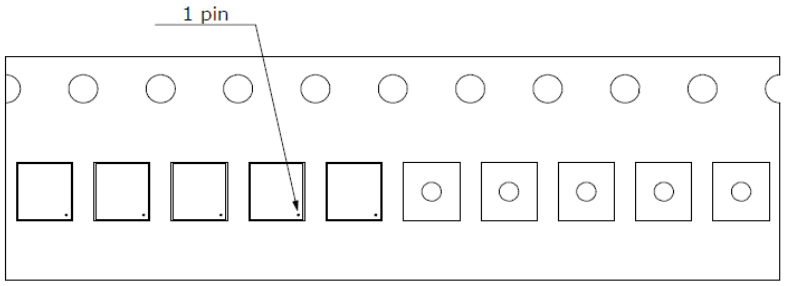


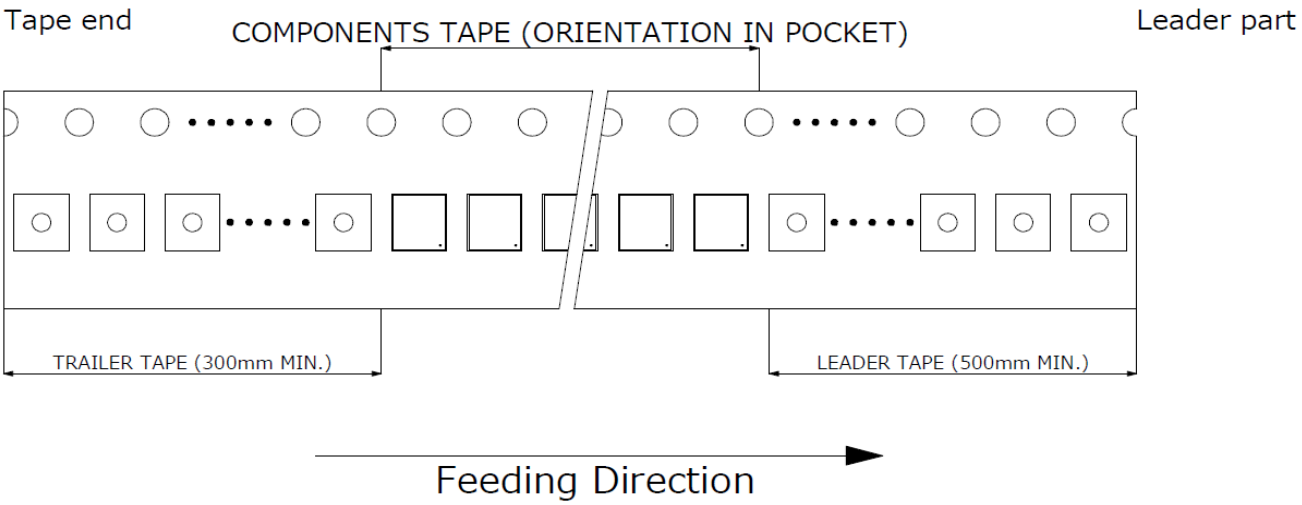
☐ **Form**

Tape & Reel Embossed Type: 8,000pcs / reel
Factory PKG Code: WLCSP3.00x2.74_14
Tape Width: 12mm, Pitch: 4mm, Reel Size:
7inch



1pin Direction





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