GOSTONE

RoHS COMPLIANT

GTD1201A

Dual N-channel Power MOSFET:
12V, 2.75mohm, 25.7A

Product Summary

VSSS	VGSS	RSS(ON) TYP/MAX	IS MAX
12V	± 8V	2.20/2.75mΩ@VGS=4.5V 2.30/2.85mΩ@VGS=3.8V 2.40/3.95mΩ@VGS=3.1V 3.00/6.10mΩ@VGS=2.5V	25.7A

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

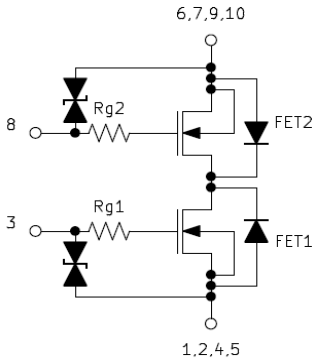
❖ Laser Marking Device Code: B

GS: Gostone
B: Marking Device Code (fixed)
D: Factory Code
Y: Year Code
W: Week Code
L: LOT Code
● : Pin#1 Identifier

Application

❖ Lithim-Ion Secondary Battery Protection Circuits

Equivalent circuit



Form

❖ Tape & Reel Embossed Type: 8,000pcs / reel

Absolute Maximum Rating (Ta=25°C)

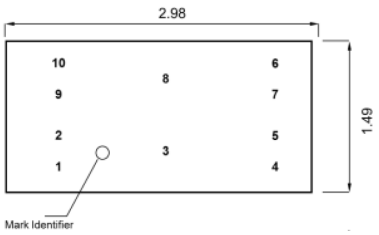
Parameter		Symbol	Rating	Unit
Source to Source Voltage		VSS	12	V
Gate to Source Voltage		VGS	±8	V
Source Current	DC	IS1 *1	12.8	A
	DC	IS2 *2	25.7	A
	Pulse	ISP *2*3	103	A
Total Dissipation	DC	PD1 *1	0.48	W
	DC	PD2 *2	1.92	W
Junction Temperature		Tj	150	℃
Storage Temperature		Tstg	-55 to +150	℃

Thermal Characteristic (Ta=25°C)

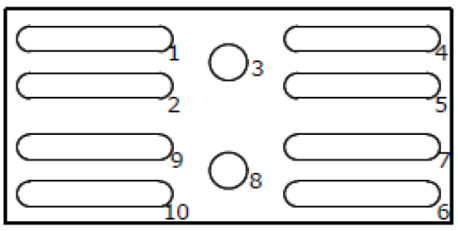
Parameter	Symbol	Rating	Unit
Thermal Resistance	Rth *1	260	℃/W
	Rth *2	65	℃/W

Note *1 Mounted on FR4 board (25.4mm x 25.4mm x t1.0mm)
with minimum copper pad (48.8mm^2, 36μm thickness copper)
Note *2 Mounted on FR4 board (25.4mm x 25.4mm x t1.0mm)
with maximum copper pad (618.2mm^2, 36μm thickness copper)
Note *3 t=10μs, duty cycle ≤ 1%

(Top View)



(Bottom View)



1,2,4,5. Source1 (FET1) 3. Gate1 (FET1)
6,7,9,10. Source2 (FET2) 8. Gate2 (FET2)

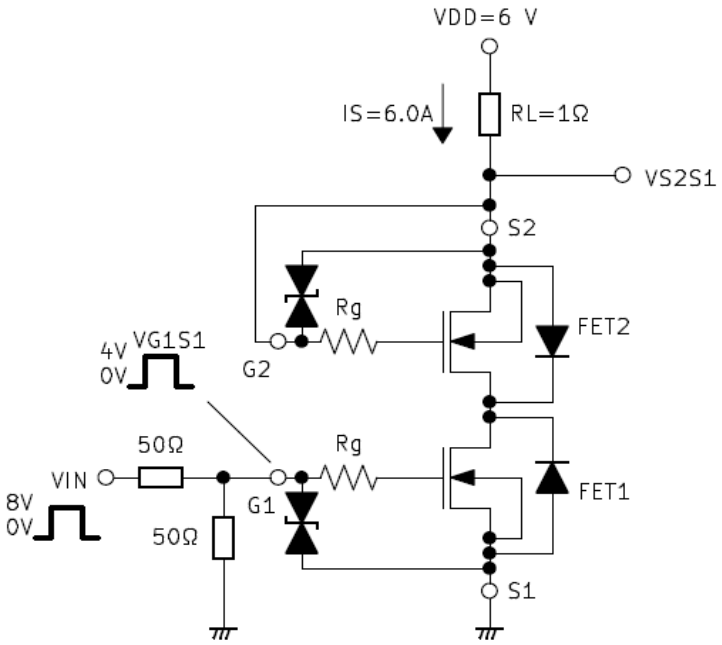
Electrical characteristics (Ta=25°C ± 3°C)

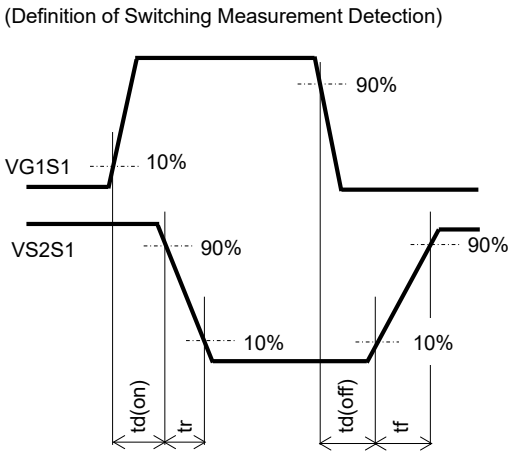
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Source-Source Breakdown Voltage	VSSS	IS=1mA, VGS=0V	12.0			V
Zero Gate Voltage Source Current	ISSS	VSS=12V, VGS=0V			1.0	μA
Gate-Source Leakage Current	IGSS1 IGSS2	VGS=±8V, VSS=0V VGS=±5V, VSS=0V			±10 ±1.0	μA
Gate-Source Threshold Voltage	Vth	VSS=6.0V, IS=1.0mA	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=6.0A, VGS=4.5V IS=6.0A, VGS=3.8V IS=6.0A, VGS=3.1V IS=6.0A, VGS=2.5V	1.55 1.60 1.65 1.90	2.20 2.30 2.40 3.00	2.75 2.85 3.95 6.10	mΩ
Body Diode Forward Voltage	VF(S-S)	IF=6.0A, VGS=0V		0.68	1.2	V
Input Capacitance *1 Output Capacitance *1 Reverse Transfer Capacitance *1	Ciss Coss Crss	VSS=10V, VGS=0V, f=1kHz		4760 500 360		pF
Turn-On Delay Time *1 *2 Rise Time *1 *2	td(on) tr	VDD=6.0V, VGS=0 to 4.0V, IS=6.0A		1.6 2.2		μs
Turn-Off Delay Time *1 *2 Fall Time *1 *2	td(off) tf	VDD=6.0V, VGS=4.0 to 0V, IS=6.0A		5.2 3.5		μs
Total Gate Charge *1 Gate-Source Charge *1 Gate-Drain Charge *1	Qg Qgs Qgd	VDD=6.0V, VGS=0 to 4.0V, IS=6.0A		35.1 8.9 8		nC
Gate Resistance *1	Rg	f=1MHz		850		Ω

Note *1 Guaranteed by Design

Note *2 Measurement Circuit for Switching Characteristics

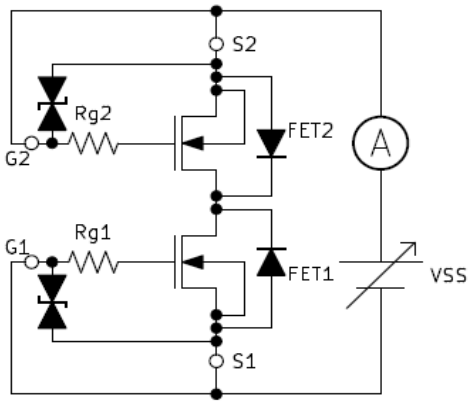
FET1 Measurement Circuit for Switching Characteristics td(on), tr, td(off), tf (FET2: Gate-Source Short)



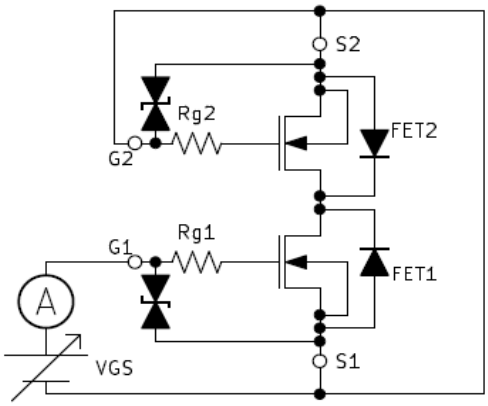


Test Circuit for FET1

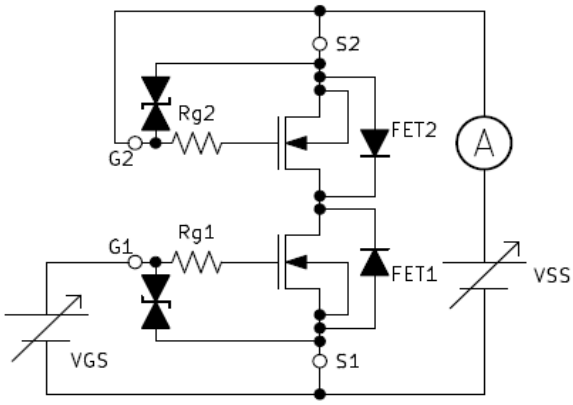
Test Circuit 1
VGSS/ISSS



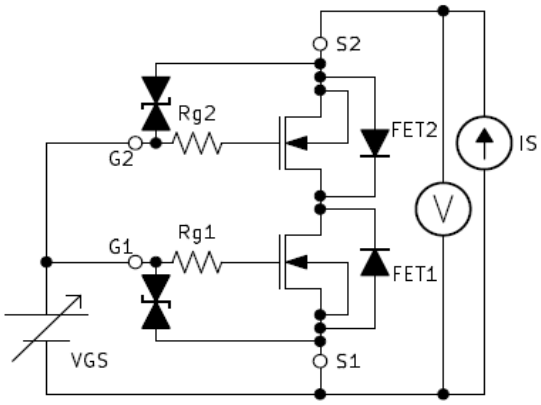
Test Circuit 2
IGSS/1/2



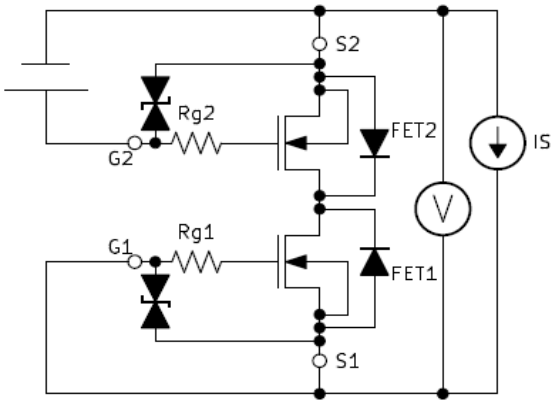
Test Circuit 3
Vth



Test Circuit 4
RSS(on)

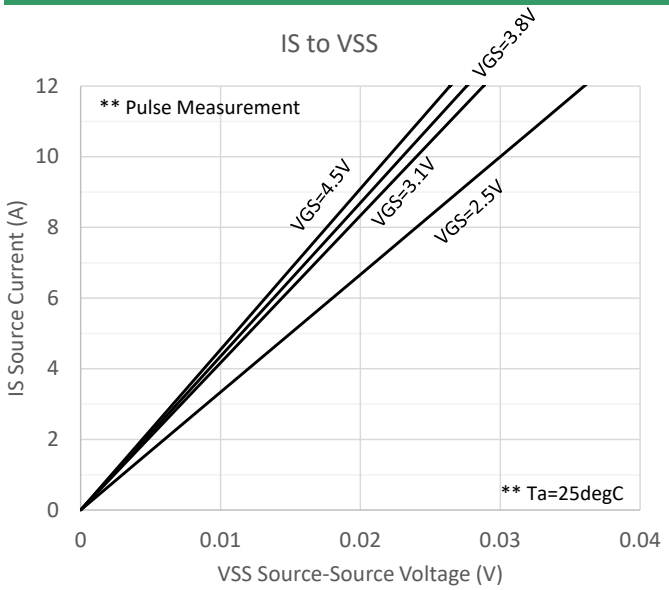


Test Circuit 5
VF(S-S)

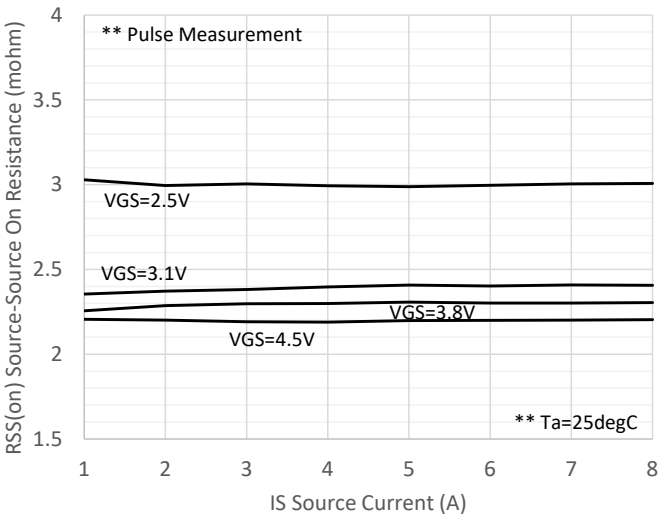


Technical data

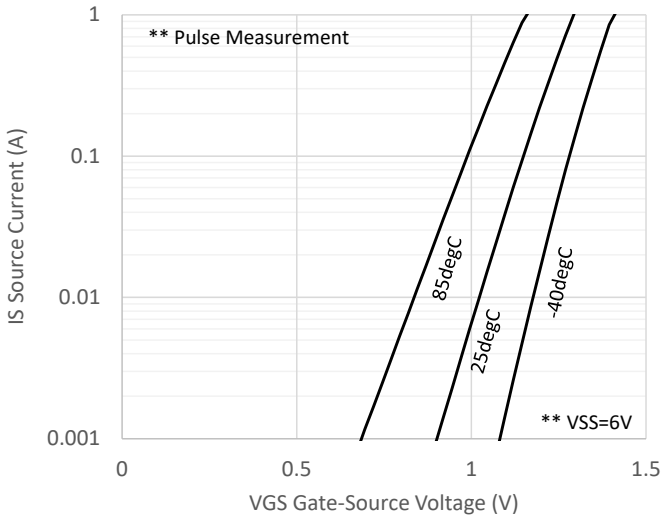
IS to VSS



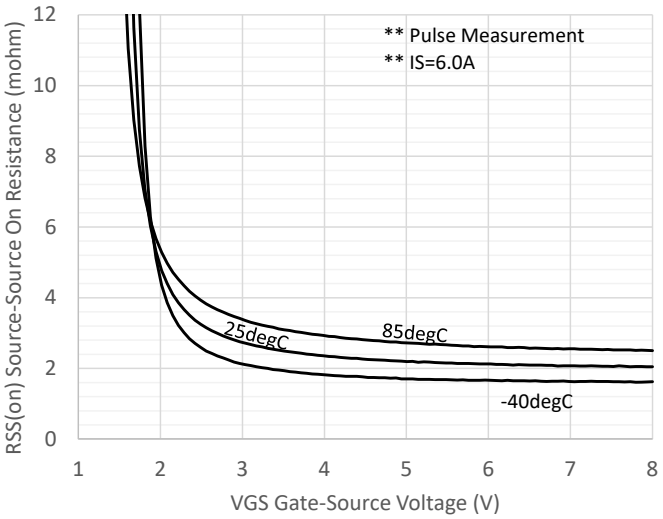
RSS(on) to IS



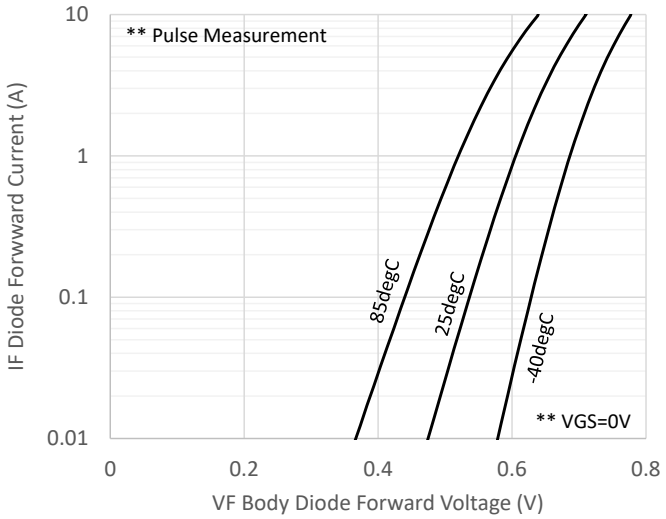
IS to VGS



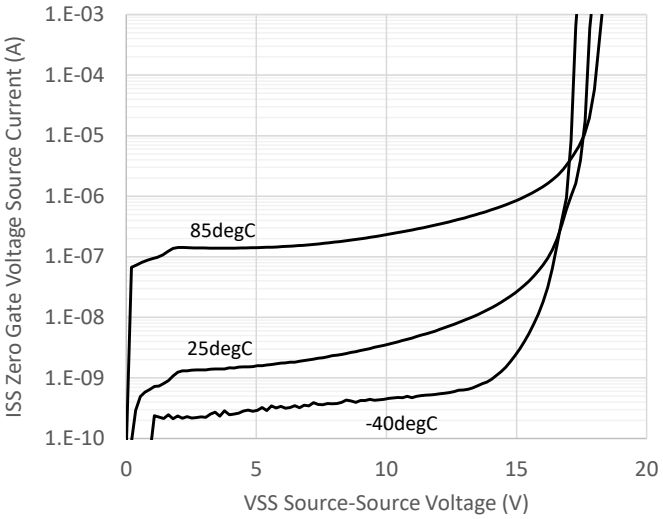
RSS(on) to VGS



IF to VF

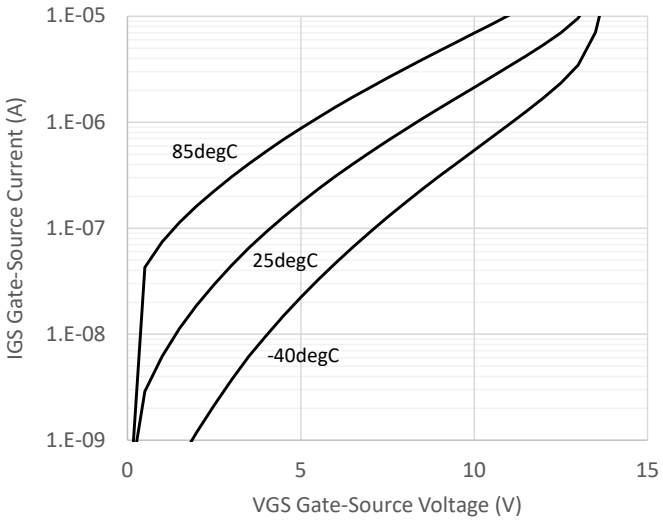


ISS to VSS

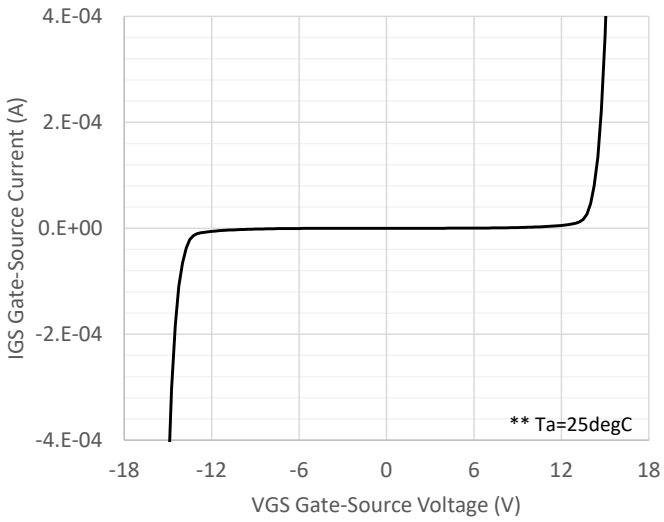


Technical data

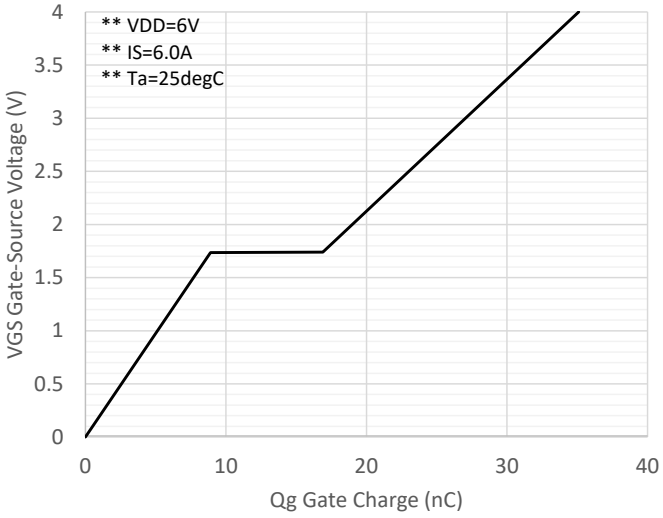
IGS to VGS



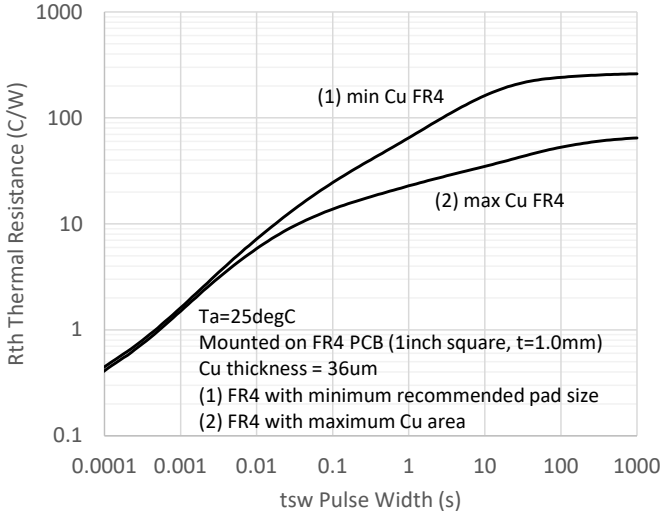
IGS to VGS



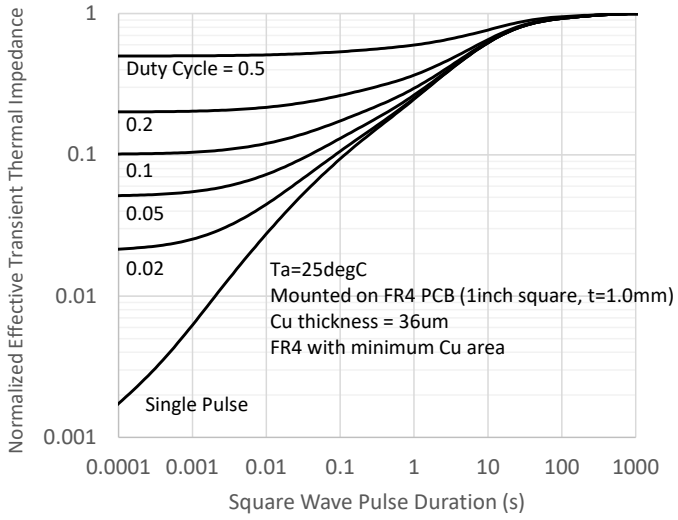
Dynamic Input / Output Characteristics



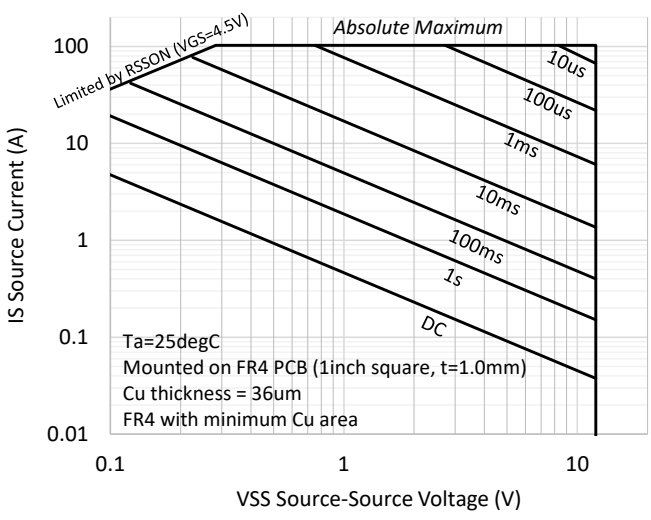
Rth to tsw



Thermal Response

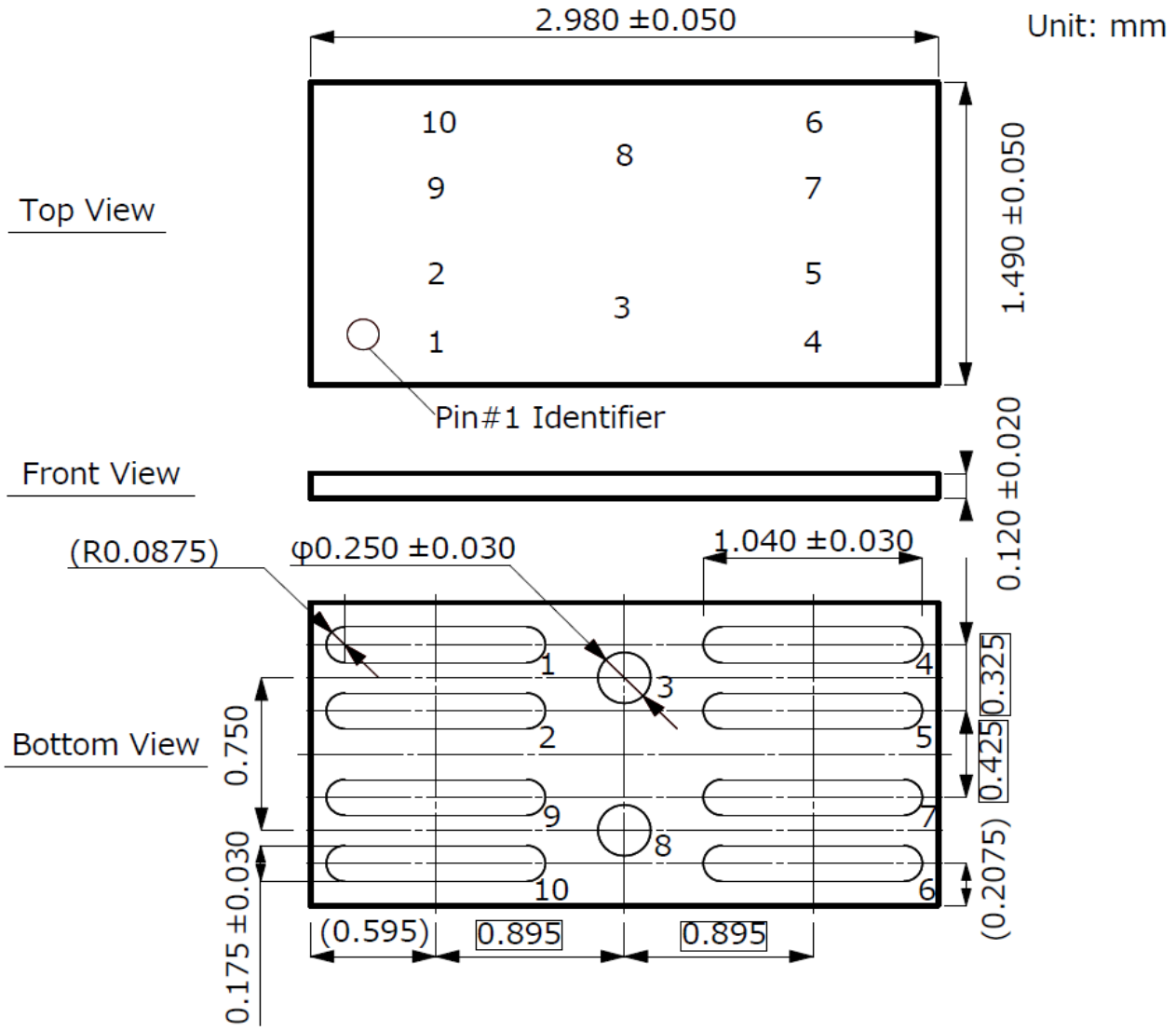


Safe Operating Area



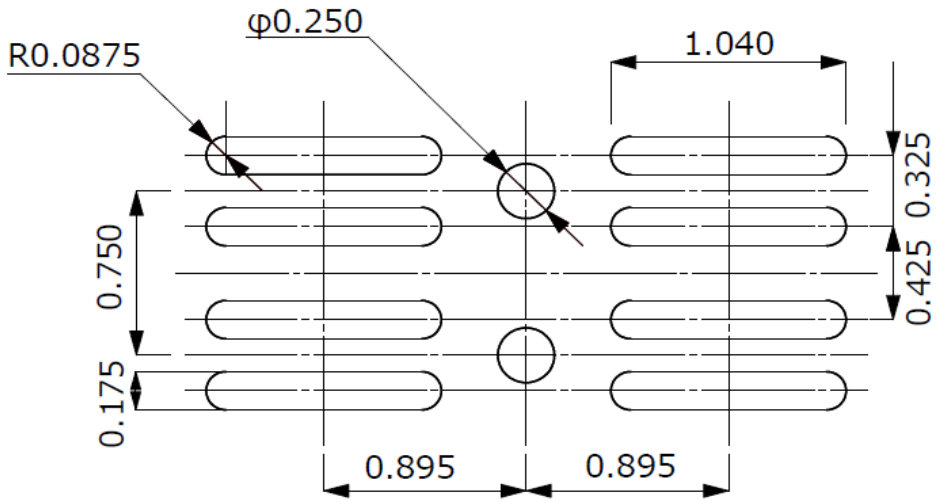
Package outline dimensions

Unit: mm



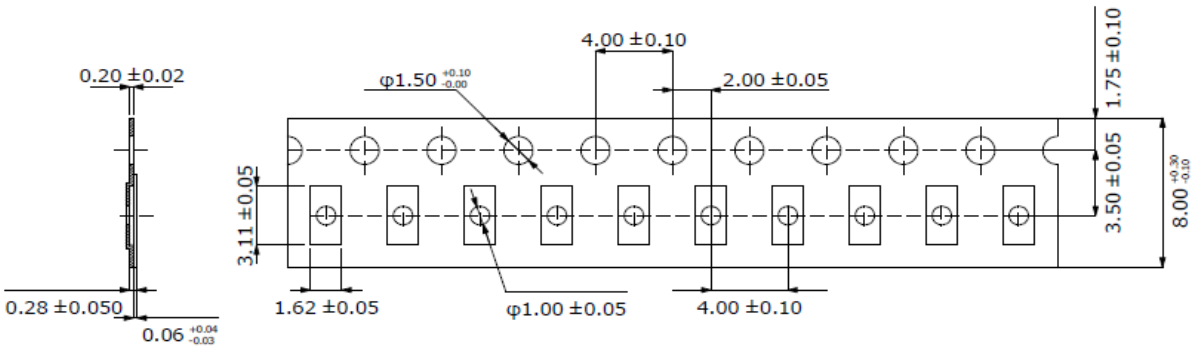
(Reference) Board Land and Stencil Mask Pattern

Unit: mm

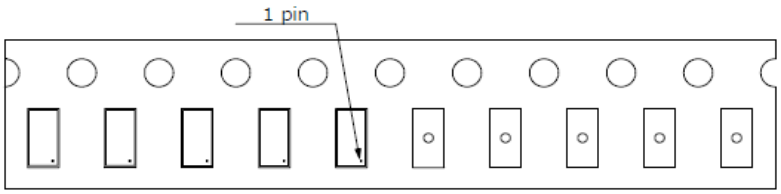


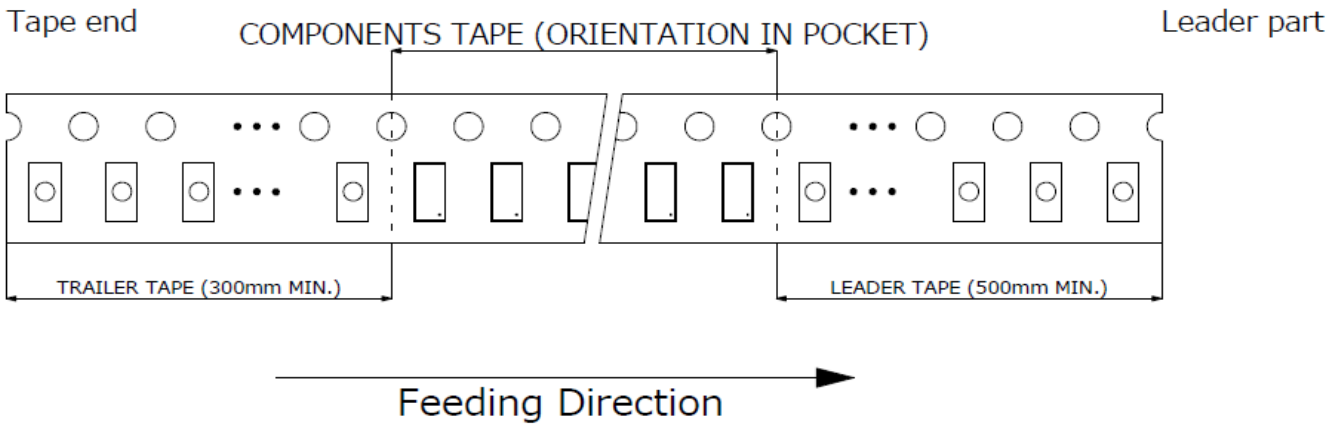
Form

Tape & Reel Embossed Type: 8,000pcs / reel
Factory PKG Code: WLCSP3.00x1.51_10
Tape Width: 8mm, Pitch: 4mm, Reel Size: 7inch



1pin Direction





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