GOSTONE

RoHS COMPLIANT

GTD2406A

Dual N-channel Power MOSFET
24V, 8.7mohm, 12.9A

Product Summary

VSSS	VGSS	RSS(ON) TYP/MAX	IS MAX
20V	± 12V	6.4/8.7mΩ@VGS=4.5V 6.7/9.4mΩ@VGS=3.8V 7.3/11.2mΩ@VGS=3.1V 8.8/15.8mΩ@VGS=2.5V	12.9A

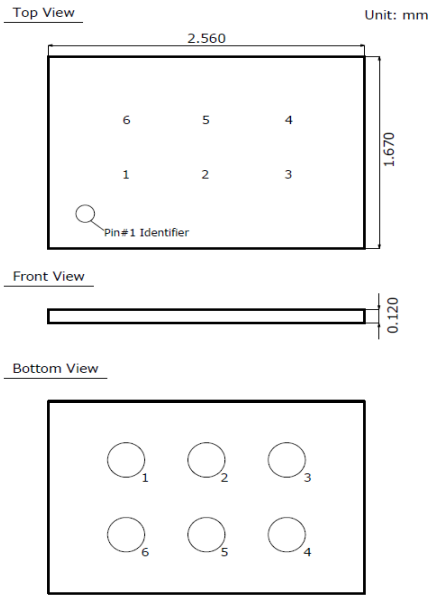
Features

- 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)

Package & Internal Circuit

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

Pin Assignment



FET1 1,3: Source1, 2: Gate1
FET2 4,6: Source2, 5: Gate2

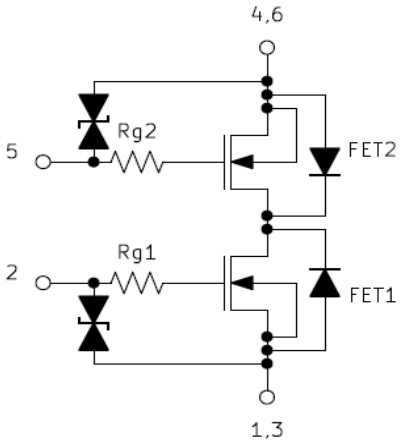
Ordering Information

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

Absolute Maximum Rating (Ta=25°C)

Parameter		Symbol	Rating	Unit
Source to Source Voltage		VSS	24.0	V
Gate to Source Voltage		VGS	±12	V
Source Current	DC	IS1 *1	7.1	A
	DC	IS2 *2	13.0	A
	Pulse	ISP *2*3	52	A
Total Dissipation	DC	PD1 *1	0.46	W
	DC	PD2 *2	1.55	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	271	℃/W
	Rth *2	81	℃/W

Note *1 Mounted on FR4 board (25.4mm x 25.4mm x t1.0mm)
with minimum copper pad (45.5mm2, 36μm thickness copper)
Note *2 Mounted on FR4 board (25.4mm x 25.4mm x t1.0mm)
with maximum copper pad (615.5mm2, 36μm thickness copper)
Note *3 t=10μs, duty cycle ≤ 1%

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

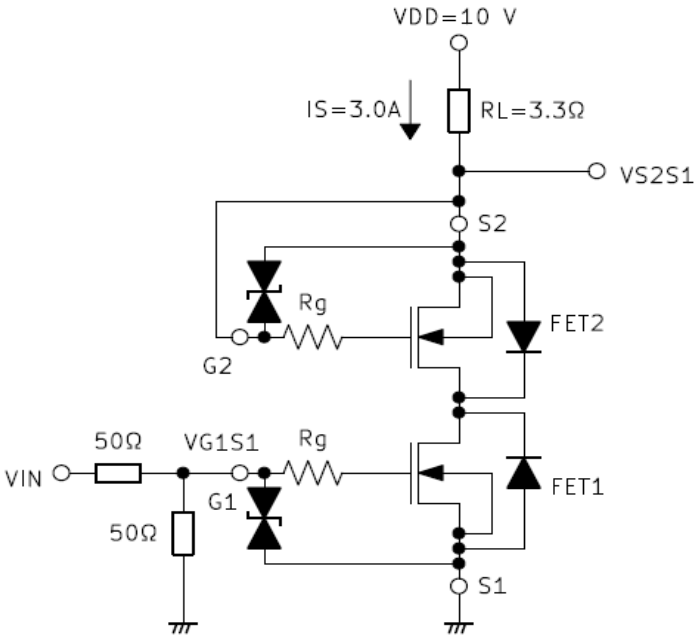
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Source-Source Breakdown Voltage	VSSS	IS=1mA, VGS=0V	24.0			V
Zero Gate Voltage Source Current	ISSS	VSS=24V, VGS=0V			1.0	μA
Gate-Source Leakage Current	IGSS1	VGS=±8V, VSS=0V			±1.0	μA
Gate-Source Threshold Voltage	Vth	VSS=10.0V, IS=1.0mA	0.4	0.9	1.4	V
Source-Source On-State Resistance	RSS(on)1	IS=3.0A, VGS=4.5V	4.5	6.4	8.7	mΩ
	RSS(on)2	IS=3.0A, VGS=3.8V	4.7	6.7	9.4	
	RSS(on)3	IS=3.0A, VGS=3.1V	5.0	7.3	11.2	
	RSS(on)4	IS=3.0A, VGS=2.5V	5.5	8.8	15.8	
Body Diode Forward Voltage	VF(S-S)	IF=6.0A, VGS=0V		0.8	1.2	V
Input Capacitance *1	Ciss	VSS=10V, VGS=0V, f=1kHz		3,260		pF
Output Capacitance *1	Coss			280		
Reverse Transfer Capacitance *1	Crss			230		
Turn-On Delay Time *1 *2	td(on)	VDD=10V, VGS=0 to 4.0V, IS=3.0A		0.5		μs
Rise Time *1 *2	tr			0.8		
Turn-Off Delay Time *1 *2	td(off)	VDD=10V, VGS=4.0 to 0V, IS=3.0A		2.4		μs
Fall Time *1 *2	tf			1.2		
Total Gate Charge *1	Qg	VDD=10V, VGS=0 to 4.0V, IS=6A		28.0		nC
Gate-Source Charge *1	Qgs			6.0		
Gate-Drain Charge *1	Qgd			8.5		
Gate Resistance *1	Rg	f=1MHz		610		Ω

Note *1 Guaranteed by Design

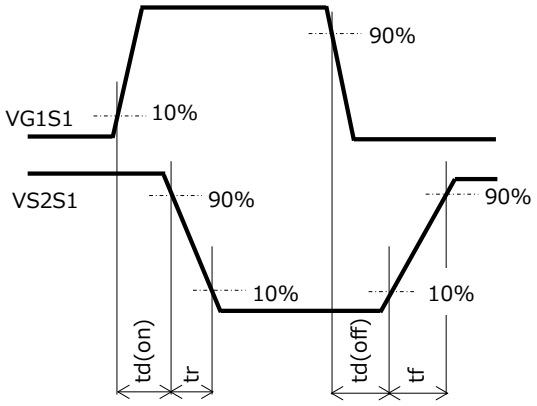
Note *2 Measurement Circuit for Switching Characteristics

- FET1 Measurement Circuit for Switching Characteristics td(on), tr, td(off), tf

(FET2: Gate-Source Short)

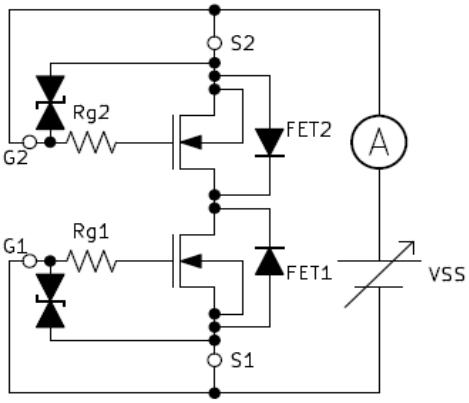


(Definition of Switching Measurement Detection)

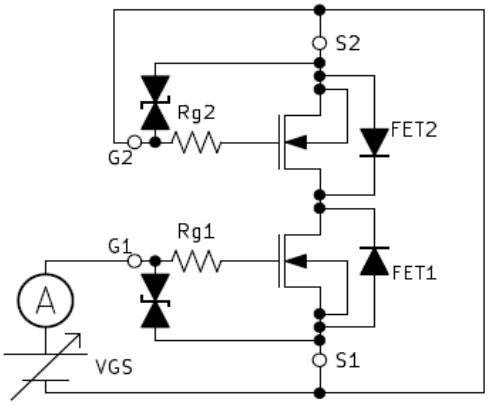


Test circuits for FET1

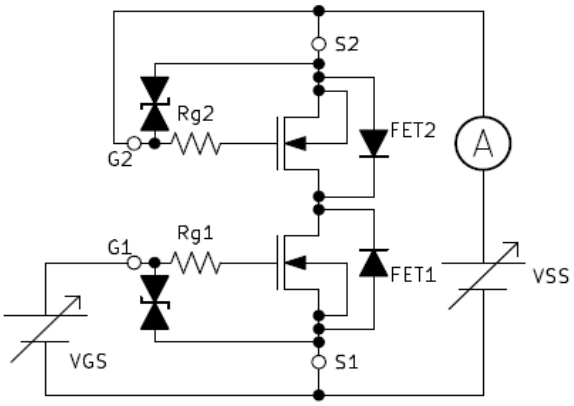
Test Circuit 1
VSSS/ISSS



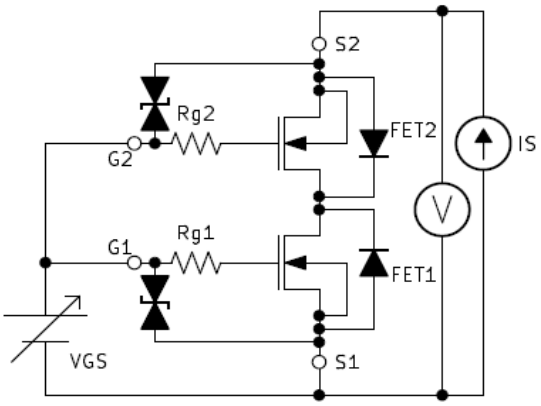
Test Circuit 2
IGSS1/2



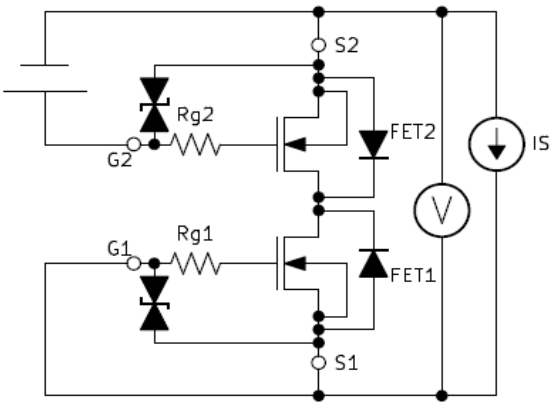
Test Circuit 3
Vth



Test Circuit 4
RSS(on)

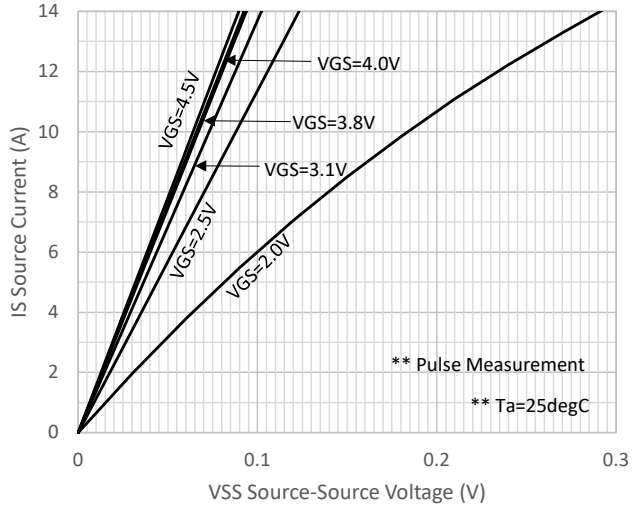


Test Circuit 5
VF(S-S)

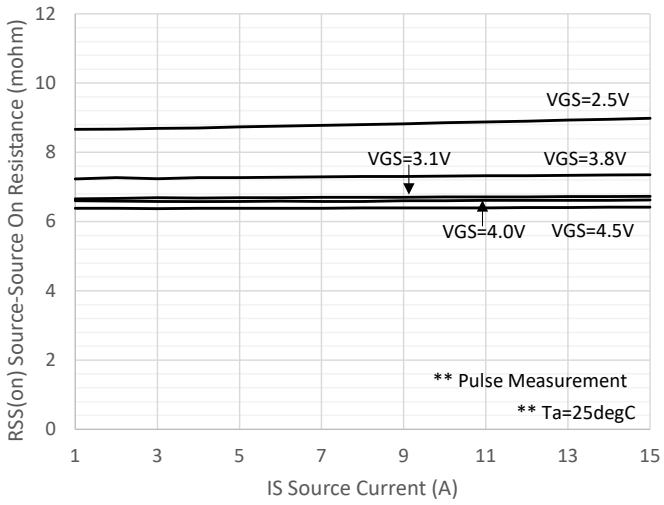


Technical data

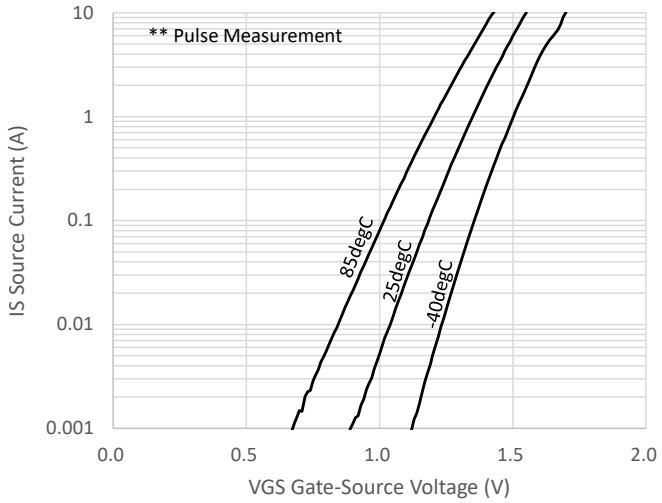
IS to VSS



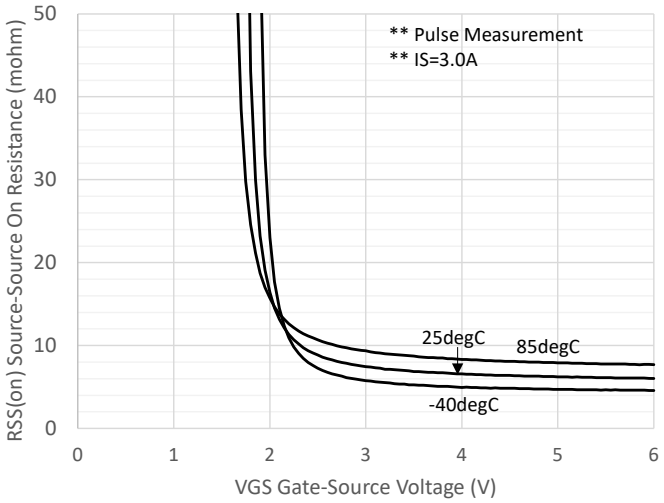
RSS(on) to IS



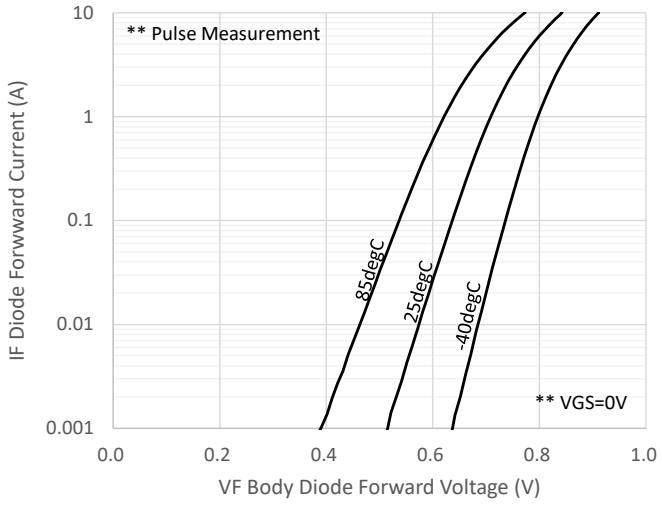
IS to VGS



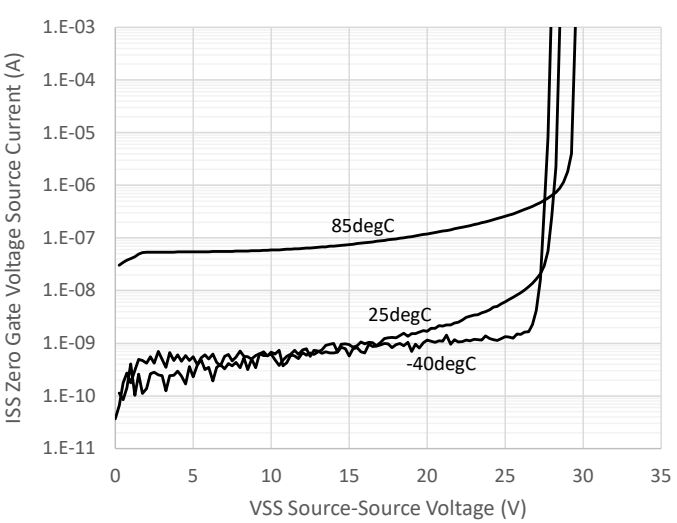
RSS(on) to VGS



IF to VF

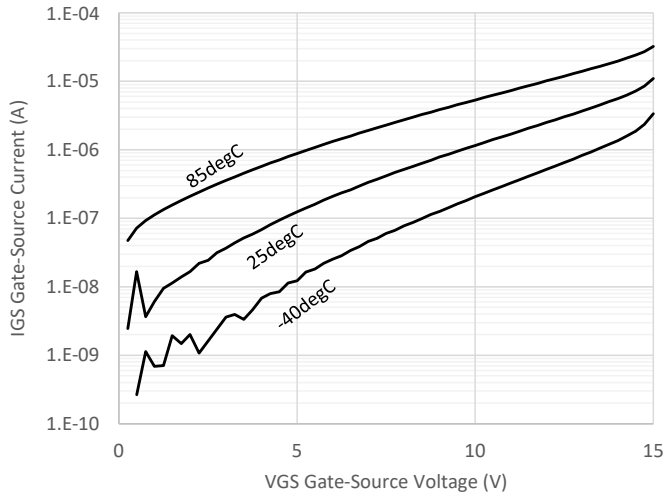


ISS to VSS

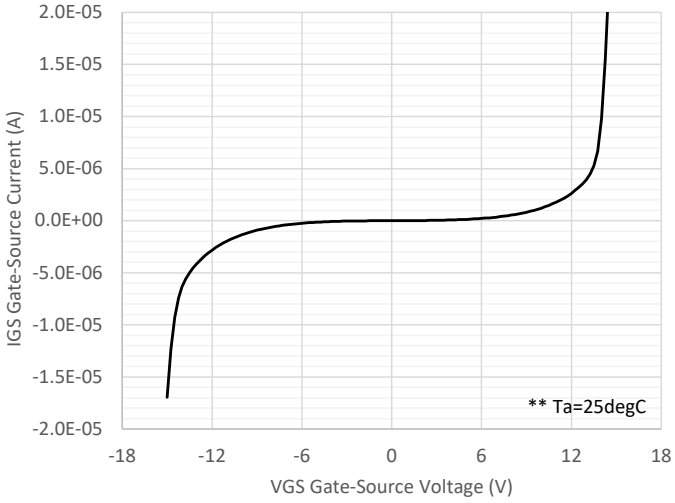


Technical data

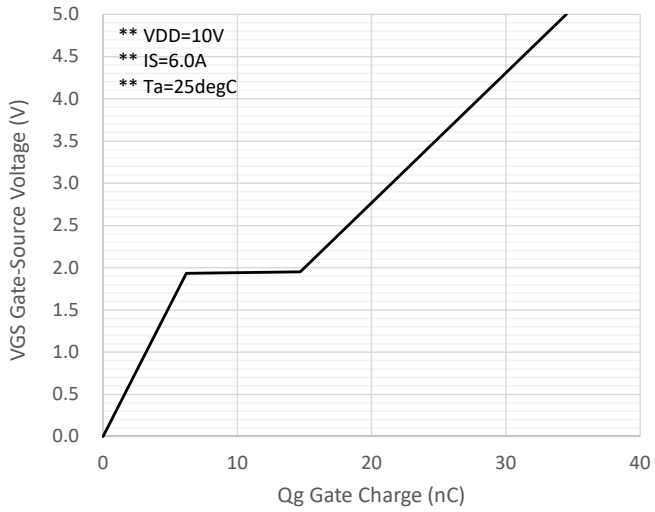
IGS to VGS



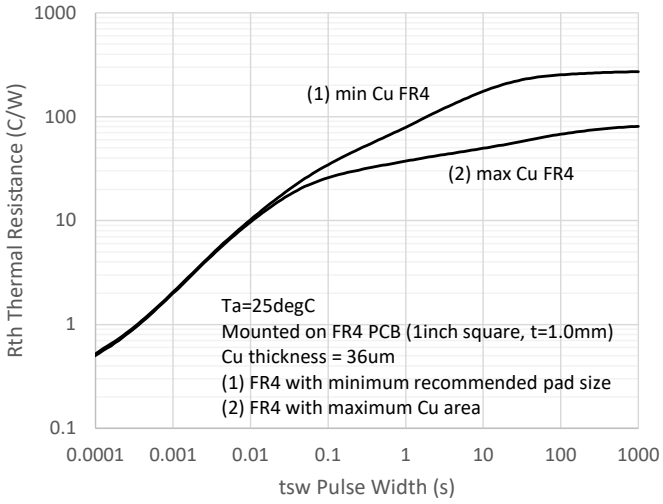
IGS to VGS



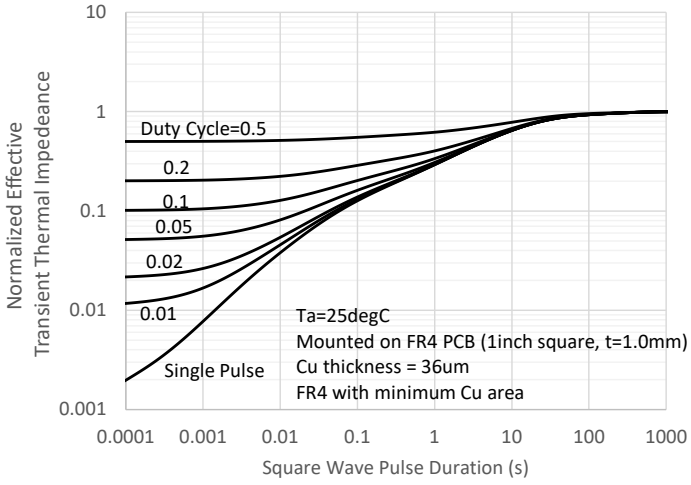
Dynamic Input / Output Characteristics



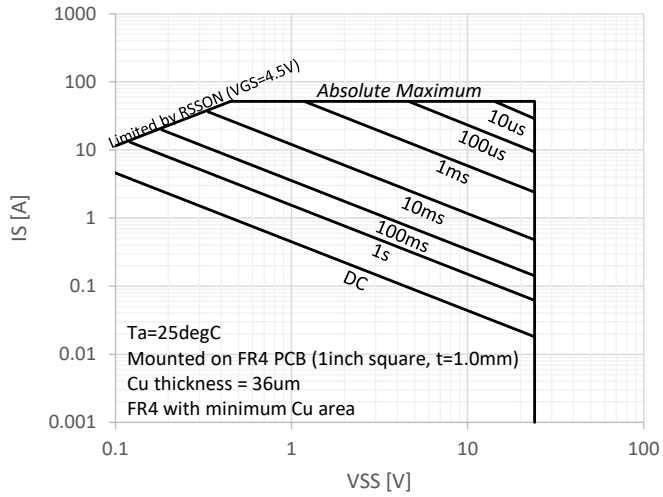
Rth to tsw



Thermal Response



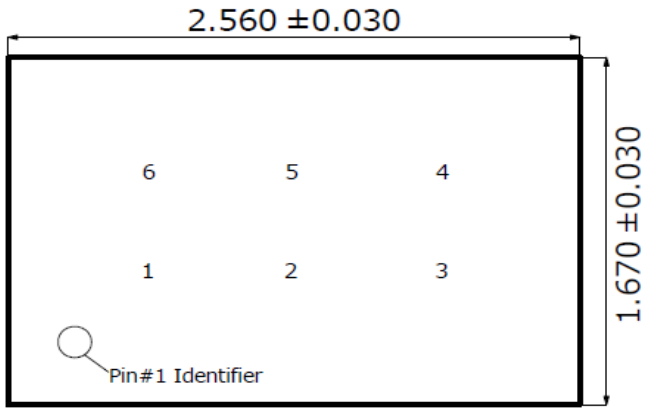
Safe Operating Area



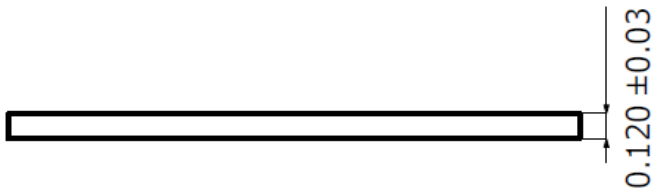
Package outline dimensions

Top View

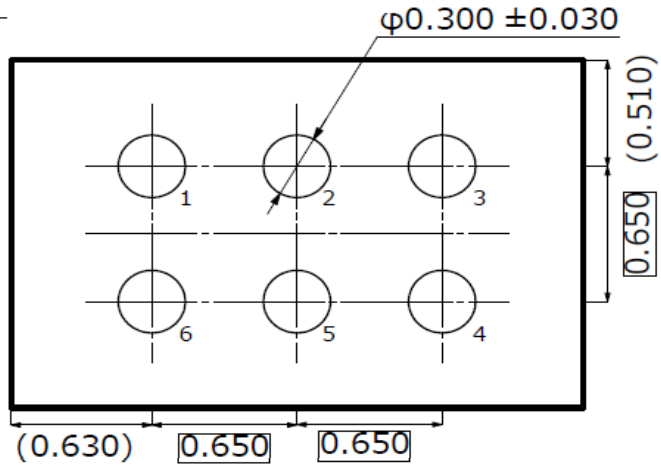
Unit: mm



Front View

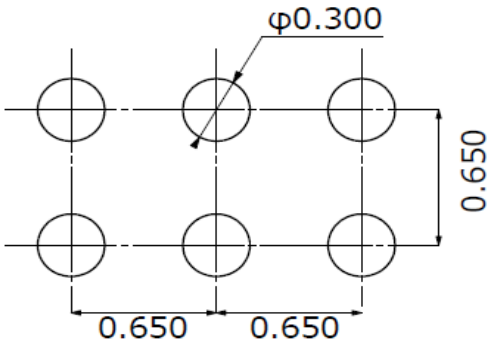


Bottom View



(Reference) Board Land and Stencil Mask Pattern

Unit: mm



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