GOSTONE

RoHS COMPLIANT

GTD2207A

Dual N-channel Power MOSFET:
22V, 1.6mohm, 30A

Product Summary

VSSS	VGSS	RSS(ON) TYP/MAX	IS MAX
22V	± 12V	1.45/1.95mΩ@VGS=4.5V 1.60/2.05mΩ@VGS=3.8V 1.70/2.80mΩ@VGS=3.1V 2.10/4.70mΩ@VGS=2.5V	30A

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)

Form

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

Application

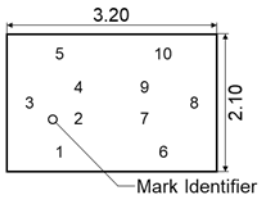
❖ Lithim-Ion Secondary Battery Protection Circuits

Absolute Maximum Rating (Ta=25°C)

Parameter		Symbol	Rating	Unit
Source-source Voltage		VSS	22	V
Gate-source Voltage		VGS	± 12	V
Source Current	DC *1	IS1	16.9	A
	DC *2	IS2	30.0	
	DC *3	IS3	41.5	
	Pulsed *4	ISp	167	
Total Power Dissipation	DC *1	PD1	0.59	W
	DC *2	PD2	1.9	
	DC *3	PD3	3.5	
Operating Junction and Storage Temperature Range		Tj, Tstg	- 55 to + 150	°C

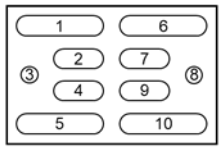
Unit: mm

(Top View)



(Front View)

(Bottom View)



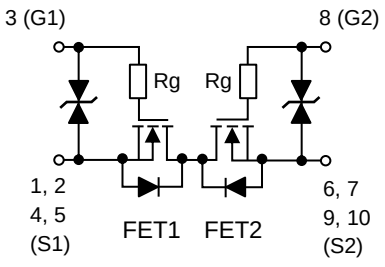
1, 2, 4, 5. Source1 (FET1) 3. Gate1 (FET1)
6, 7, 9, 10. Source2 (FET2) 8. Gate2 (FET2)

Thermal Characteristic (Ta=25°C)

Parameter	Symbol	Rating	Unit
Thermal Resistance (ch-a)	Rth1 *1	210	°C / W
	Rth2 *2	65	
	Rth3 *3	34	

Note:
*1 Mounted on FR4 board (25.4 mm x 25.4 mm x t1.0 mm).
FR4 board partially covered with copper pad (42 mm2 area, 36 μm thickness).
*2 Mounted on FR4 board (25.4 mm x 25.4 mm x t1.0 mm).
FR4 board fully covered with copper pad (605 mm2 area, 36 μm thickness).
*3 Mounted on ceramic board (70 mm x 70 mm x t1.0 mm).
*4 t = 10 μs, Duty Cycle ≤ 1 %.

Equivalent Circuit



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

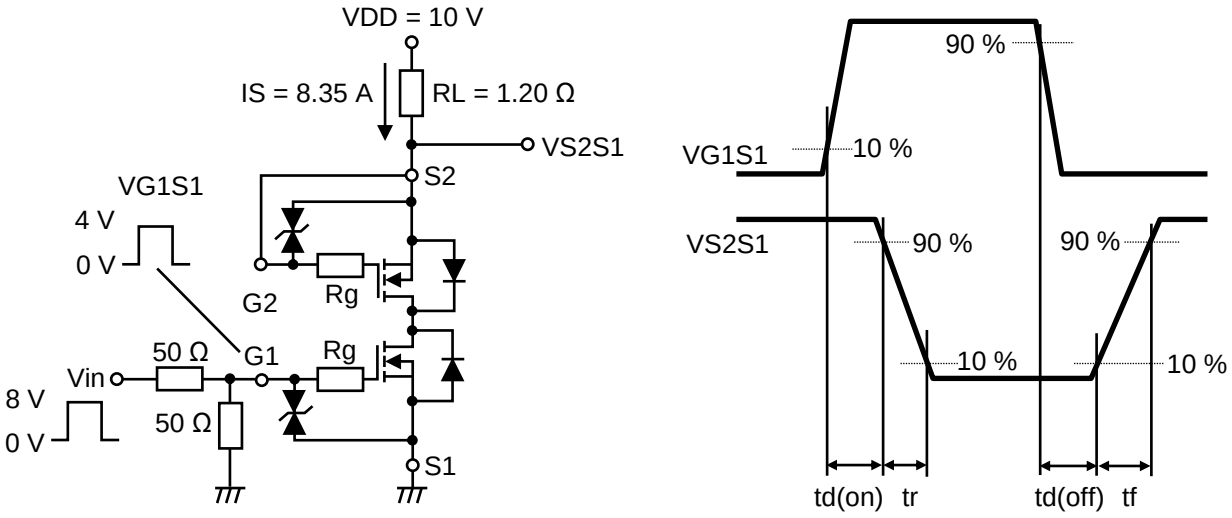
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Source-source Breakdown Voltage	VSSS	IS = 1 mA, VGS = 0 V	22			V
Zero Gate Voltage Source Current	ISSS	VSS = 22 V, VGS = 0 V			1	μA
Gate-source Leakage Current	IGSS1	VGS = ± 8 V, VSS = 0 V			± 10	μA
	IGSS2	VGS = ± 5 V, VSS = 0 V			± 1	
Gate-source Threshold Voltage	Vth	IS = 1.21 mA, VSS = 10 V	0.35	0.90	1.40	V
Source-source On-state Resistance	RSS(on)1	IS = 8.35 A, VGS = 4.5 V	1.00	1.45	1.95	mΩ
	RSS(on)2	IS = 8.35 A, VGS = 3.8 V	1.05	1.60	2.05	
	RSS(on)3	IS = 8.35 A, VGS = 3.1 V	1.10	1.70	2.80	
	RSS(on)4	IS = 8.35 A, VGS = 2.5 V	1.25	2.10	4.70	
Body Diode Forward Voltage	VF(s-s)	IF = 8.35 A, VGS = 0 V		0.7	1.0	V
Input Capacitance *1	Ciss	VSS = 10 V, VGS = 0 V, f = 1 kHz		74600		pF
Output Capacitance *1	Coss			575		
Reverse Transfer Capacitance *1	Crss			506		
Turn-on Delay Time *1, *2	td(on)	VDD = 10 V, VGS = 0 to 4 V		1.7		μs
Rise Time *1, *2	tr	IS = 8.35 A		4.2		
Turn-off Delay Time *1, *2	td(off)	VDD = 10 V, VGS = 4 to 0 V		11		μs
Fall Time *1, *2	tf	IS = 8.35 A		4.8		
Total Gate Charge *1	Qg	VDD = 10 V		64		nC
Gate-source Charge *1	Qgs	VGS = 0 to 4 V		15		
Gate-drain Charge *1	Qgd	IS = 16.7 A		13		
Gate Resistance *1	Rg	f = 1 MHz	400	700	1000	Ω

Note Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 Measuring methods for transistors.

*1 Guaranteed by design, not subject to production testing.

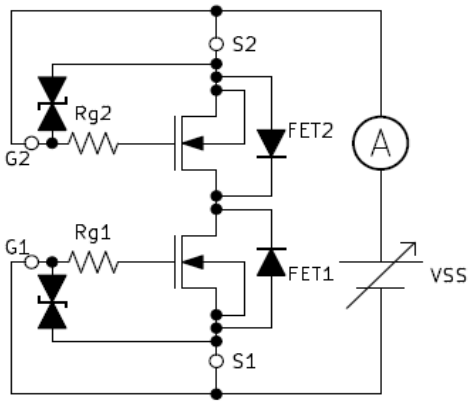
*2 Measurement circuit for Turn-on Delay Time / Rise Time / Turn-off Delay Time / Fall Time.

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

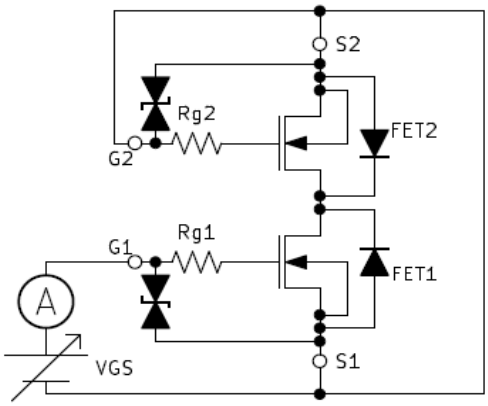


Test Circuit for FET1

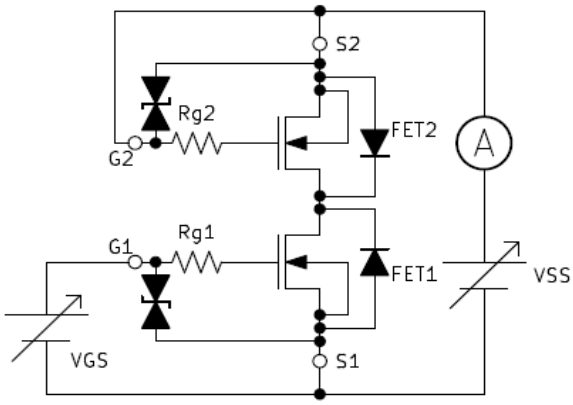
Test Circuit 1
VGSS/ISSS



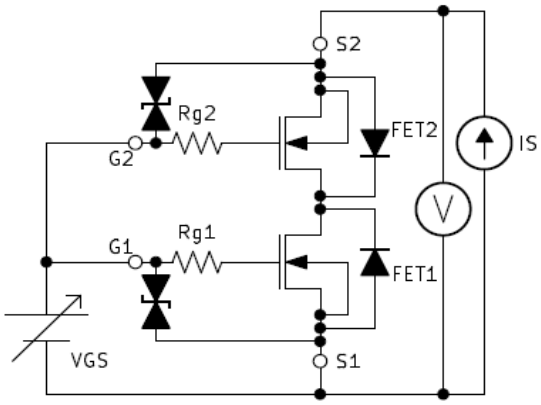
Test Circuit 2
IGSS/1/2



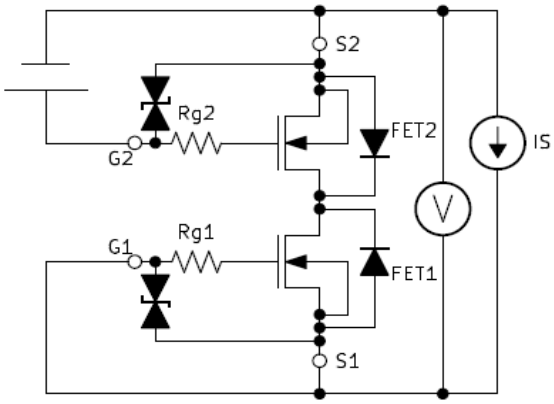
Test Circuit 3
Vth



Test Circuit 4
RSS(on)

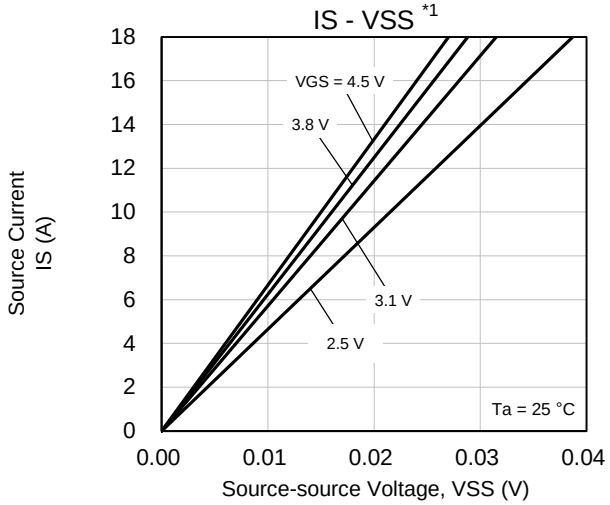


Test Circuit 5
VF(S-S)

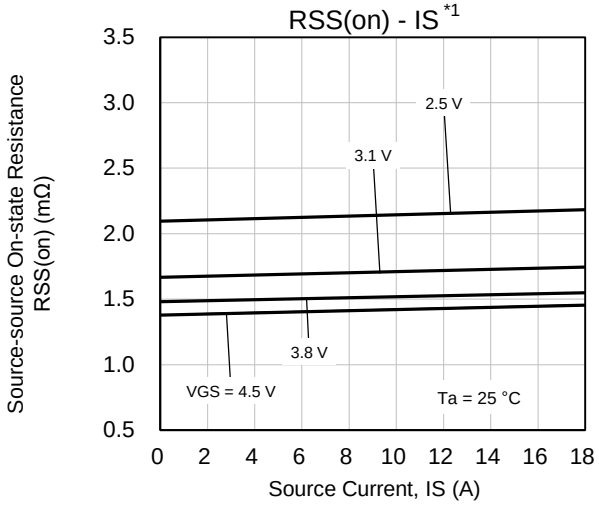


Technical data

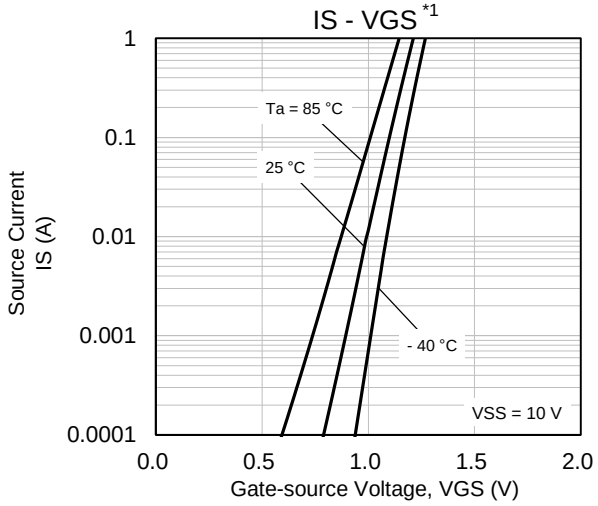
IS - VSS *1



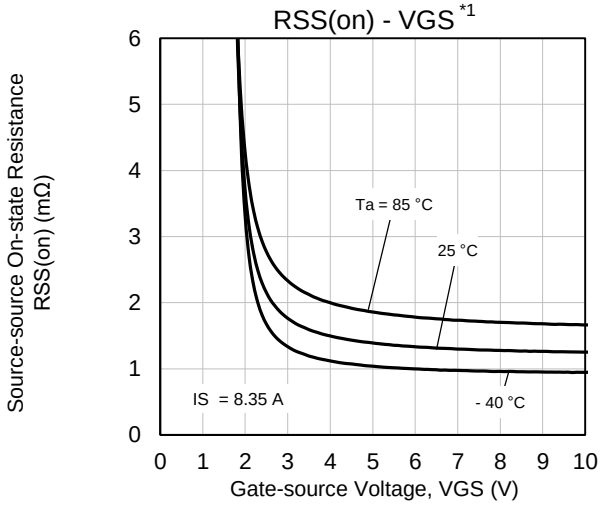
RSS(on) - IS *1



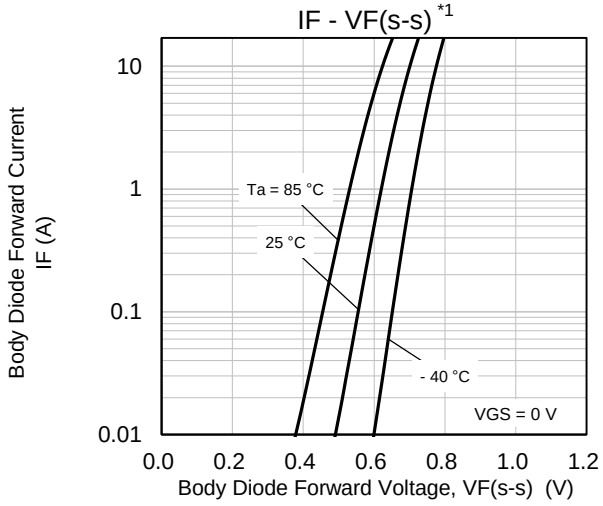
IS - VGS *1



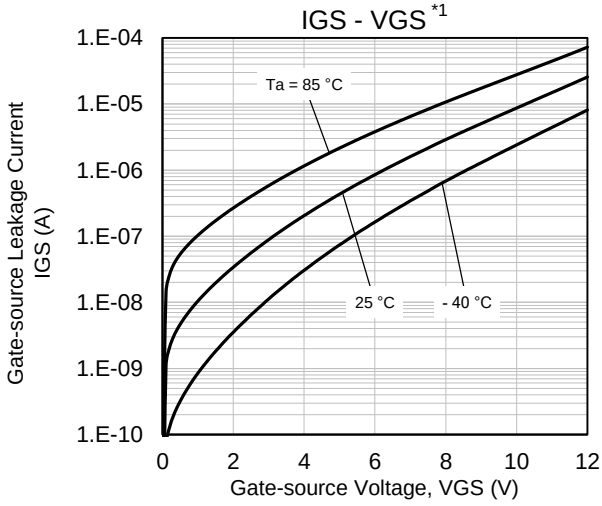
RSS(on) - VGS *1



IF - VF(s-s) *1

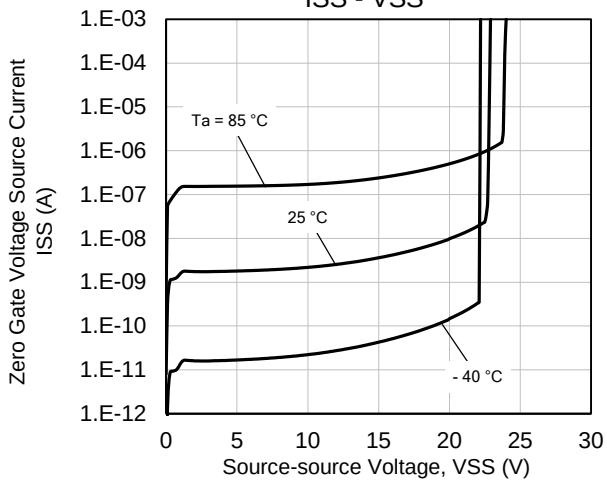


IGS - VGS *1

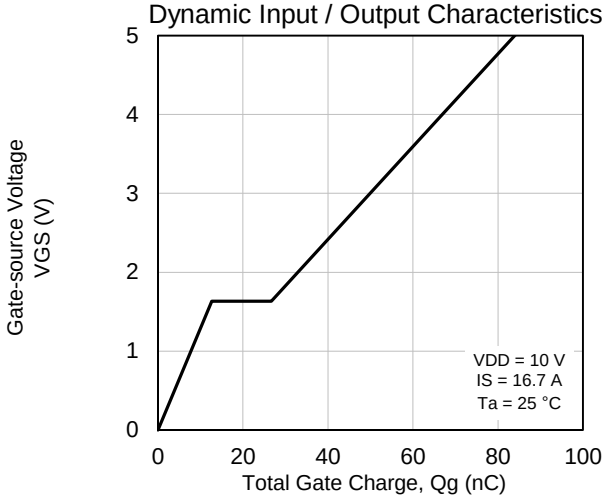


Technical data

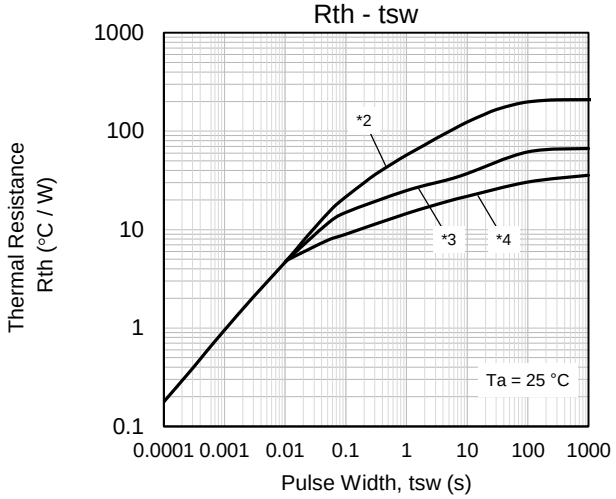
ISS - VSS *1



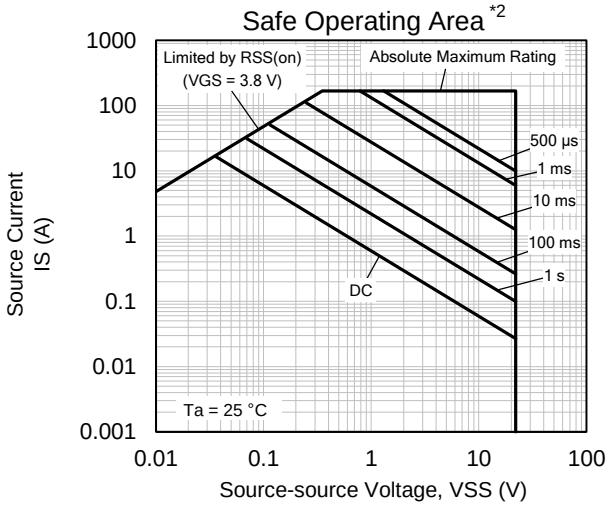
Dynamic Input / Output Characteristics



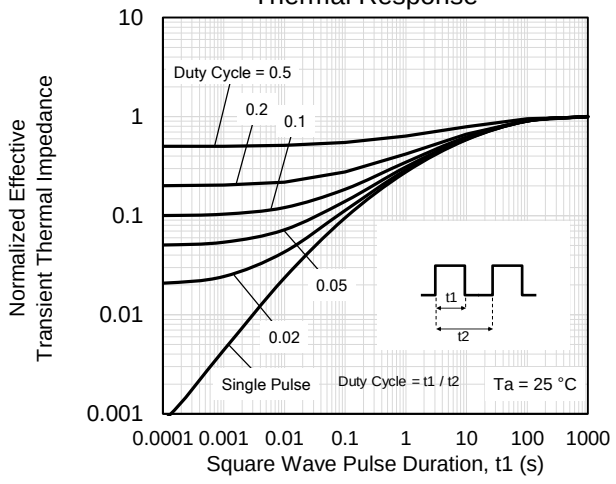
Rth - tsw



Safe Operating Area *2



Thermal Response *2



Note

*1 Pulse measurement.

*2 Mounted on FR4 board (25.4 mm x 25.4 mm x t1.0 mm).
FR4 board partially covered with copper pad
(42 mm² area, 36 µm thickness).

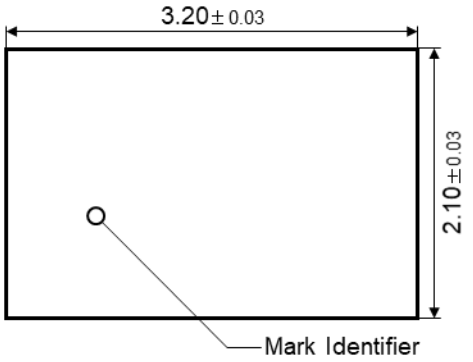
*3 Mounted on FR4 board (25.4 mm x 25.4 mm x t1.0 mm).
FR4 board fully covered with copper pad
(605 mm² area, 36 µm thickness).

*4 Mounted on ceramic board (70 mm x 70 mm x t1.0 mm).

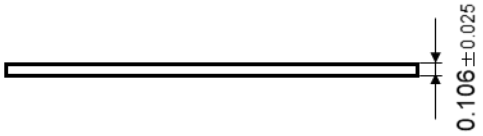
Package outline dimensions:

(Top View)

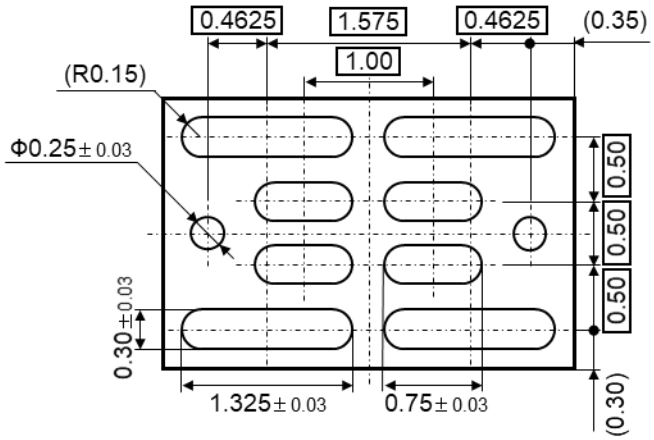
Unit: mm



(Front View)



(Bottom View)

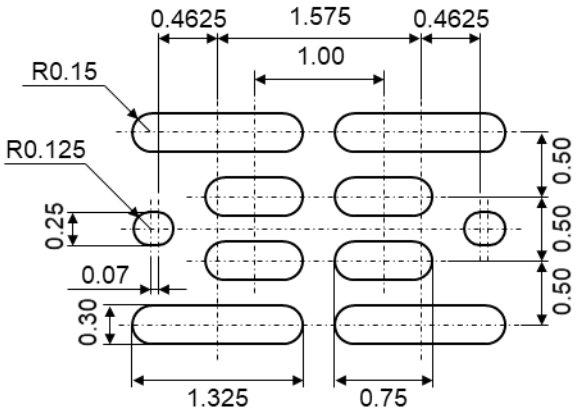


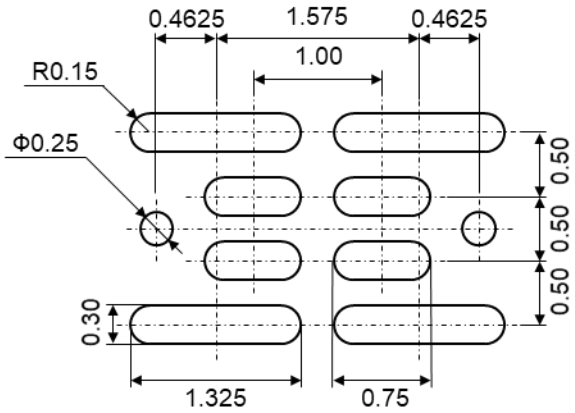
LAND & STENCIL PATTERN (Reference)

LAND

STENCIL

Unit: mm





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