



# FK3P02110L

## Silicon N-channel MOSFET

For Load-switching

### Features

- Low drain-source ON resistance:  $R_{DS(on)typ.} = 12.5m\Omega$  ( $V_{GS} = 2.5 V$ )
- High heat dissipated and ultra-compact package PMCP
- RoHS compliant (EU RoHS / MSL:Level 1 compliant)

### Marking Symbol: A1

### Packaging

Embossed type (Thermo-compression sealing) : 7 000 pcs / reel (standard)

### Absolute Maximum Ratings $T_a = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain-source voltage	VDS	24	V
Gate-source voltage	VGS	$\pm 12$	V
Drain current	$T_a = 25\text{ }^\circ\text{C}$ , DC <sup>*2</sup>	ID1	3.0
	$T_a = 25\text{ }^\circ\text{C}$ , DC <sup>*3</sup>	ID2	6.0
Drain current (Pulsed)	$T_a = 25\text{ }^\circ\text{C}$ <sup>*1*2</sup>	IDp1	9.0
	$T_a = 25\text{ }^\circ\text{C}$ <sup>*1*3</sup>	IDp2	18.0
Total power dissipation	$T_a = 25\text{ }^\circ\text{C}$ , DC <sup>*2</sup>	PD1	200
	$T_a = 25\text{ }^\circ\text{C}$ , DC <sup>*3</sup>	PD2	750
Channel temperature	Tch	150	$^\circ\text{C}$
Storage temperature range	Tstg	-55 to +150	$^\circ\text{C}$

Note : \*1  $t = 10\text{ }\mu\text{s}$ , Duty Cycle < 1%

\*2 When mounted on glass epoxy board typeA (Refer to Figure1)

\*3 When mounted on glass epoxy board typeB (Refer to Figure2)

### Electrical Characteristics $T_a = 25\text{ }^\circ\text{C} \pm 3\text{ }^\circ\text{C}$

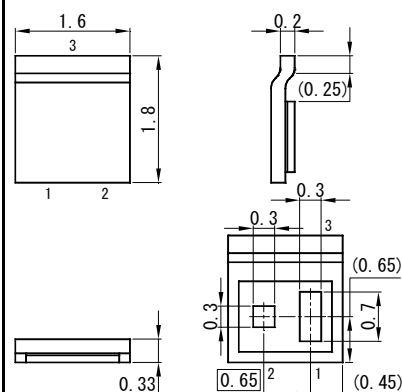
#### Static Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source breakdown voltage	VDSS	ID = 1.0 mA, VGS = 0 V	24			V
Zero gate voltage drain current	IDSS	VDS = 24 V, VGS = 0 V			1.0	$\mu\text{A}$
Gate-source leakage current	IGSS	VGS = $\pm 8$ V, VDS = 0 V			$\pm 10$	$\mu\text{A}$
Gate-source threshold voltage	Vth	ID = 1.0 mA, VDS = 10 V	0.4	0.85	1.4	V
Drain-source on-state resistance	RDS(on)	ID = 3.0 A, VGS = 2.5 V		12.5	20.0	$m\Omega$

#### Dynamic Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input capacitance <sup>*1</sup>	Ciss	VDS = 10 V, VGS = 0 V, f = 1 MHz		1500		pF
Output capacitance <sup>*1</sup>	Coss			140		
Reverse transfer capacitance <sup>*1</sup>	Crss			140		

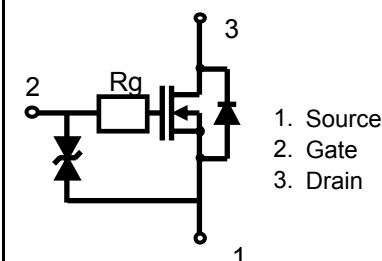
### Package dimension Unit: mm



1. Source      3. Drain  
2. Gate

Panasonic	PMCP-1816-Z1
JEITA	—
Code	—

### Equivalent circuit, Pin name



Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Turn-on delay time <sup>*1 *2</sup>	td(on)	VDD = 10 V, VGS = 0 to 4 V, ID = 3.0 A		0.6		μs
Rise time <sup>*1 *2</sup>	tr			0.9		
Turn-off delay time <sup>*1 *2</sup>	td(off)	VDD = 10 V, VGS = 4 to 0 V, ID = 3.0 A		5.0		μs
Fall time <sup>*1 *2</sup>	tf			2.3		

- Note : 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 Measuring methods for transistors.  
 2. \*1 Assured by design  
 \*2 Refer to figure3, measurement circuit for Turn-on delay time / Rise time / Turn-off delay time / Fall time

Figure1: Glass epoxy board typeA

Material:FR4, Size:25.4mm x 25.4mm x t 1.0mm, Cu pad:thickness 36μm, 25.3mm<sup>2</sup>

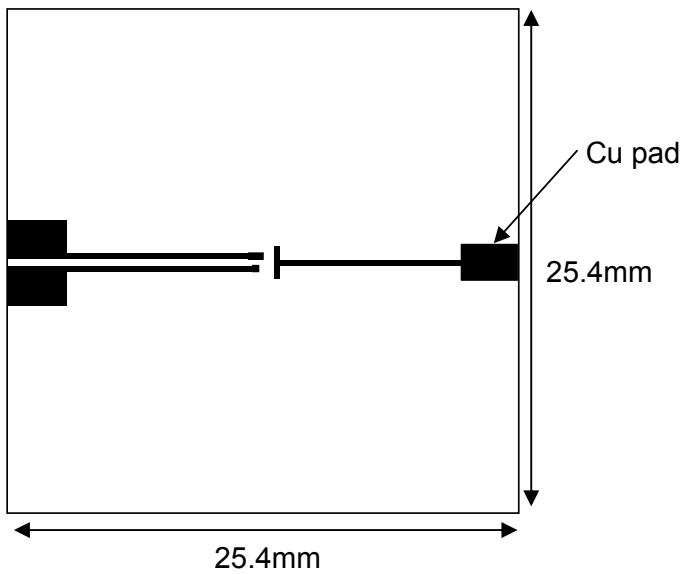


Figure2: Glass epoxy board typeB

Material:FR4, Size:25.4mm x 25.4mm x t 1.0mm, Cu pad:thickness 36μm, 82.0mm<sup>2</sup>

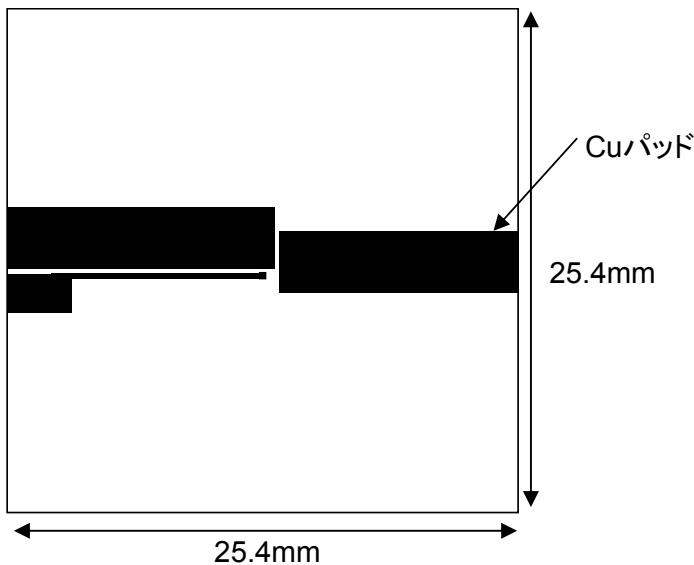
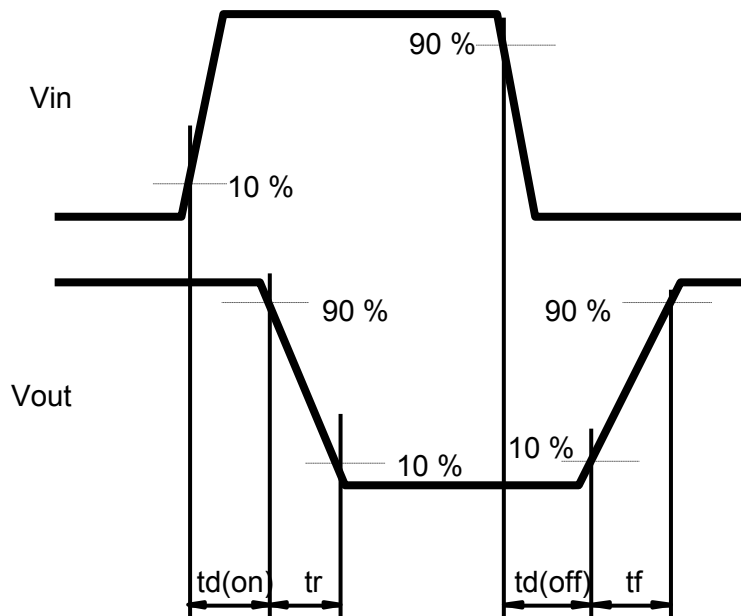
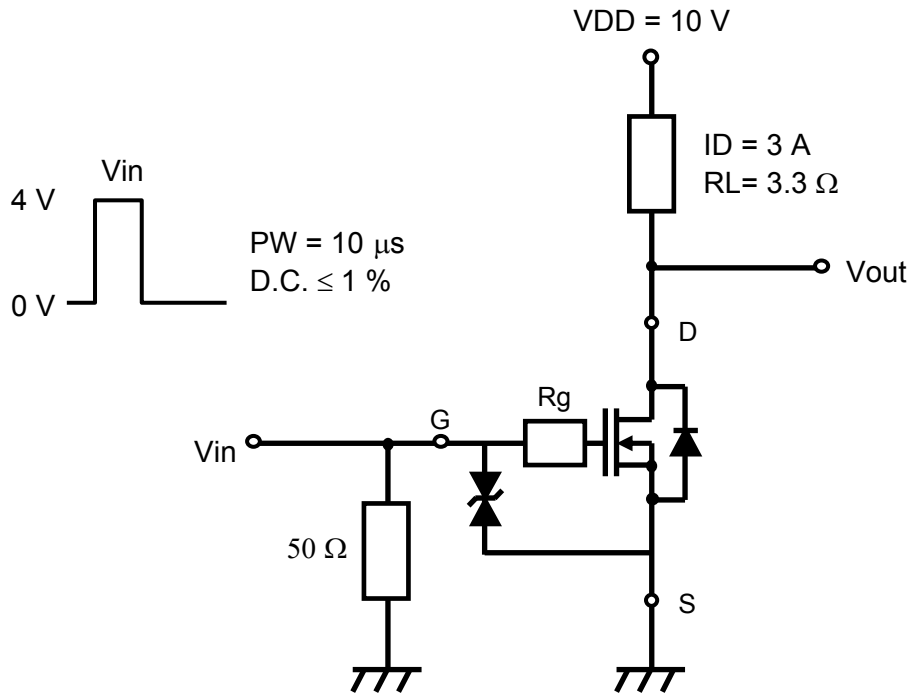
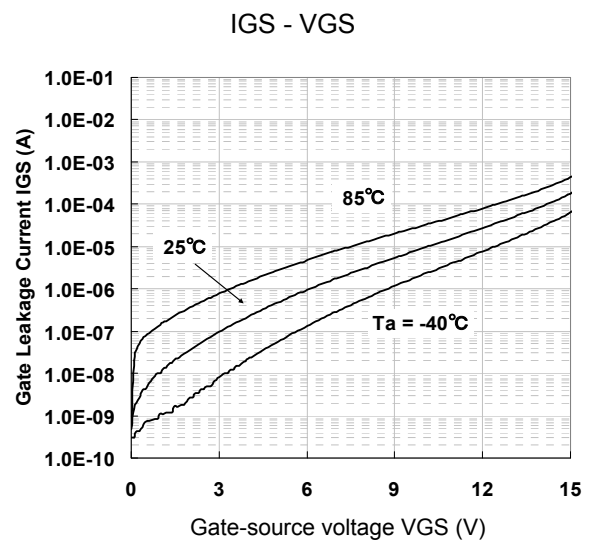
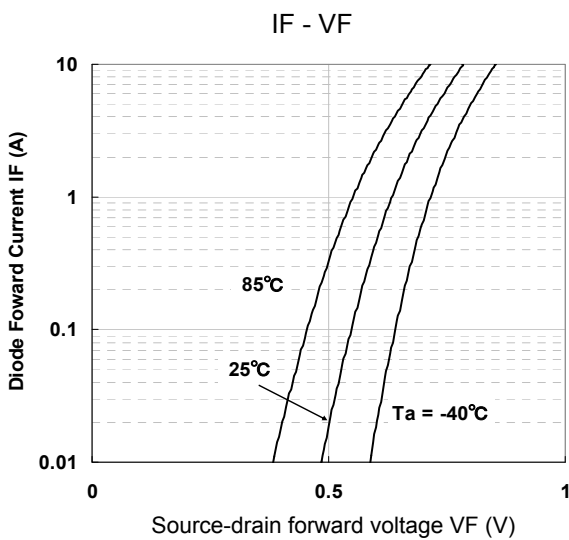
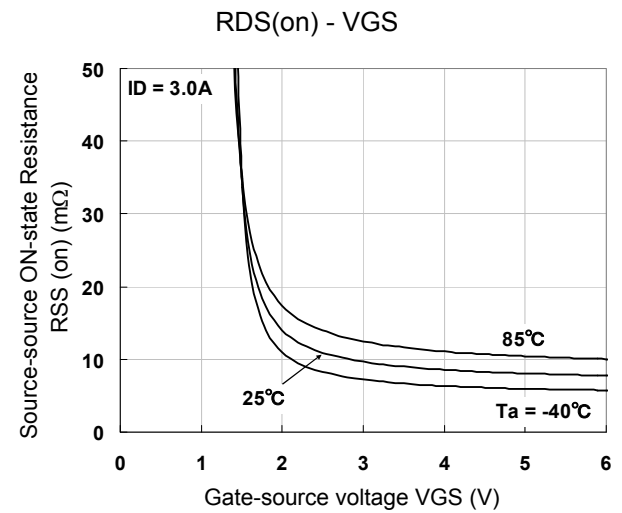
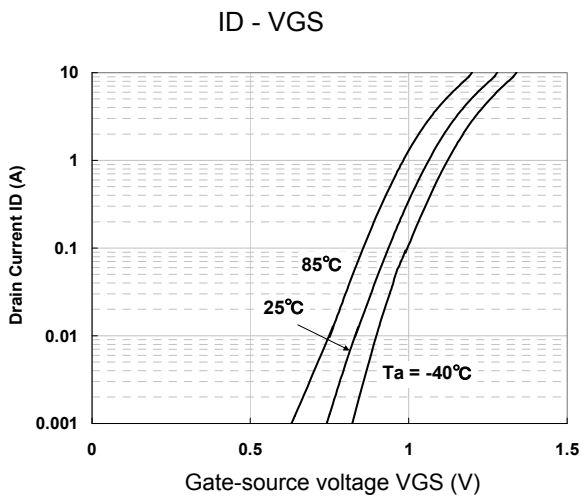
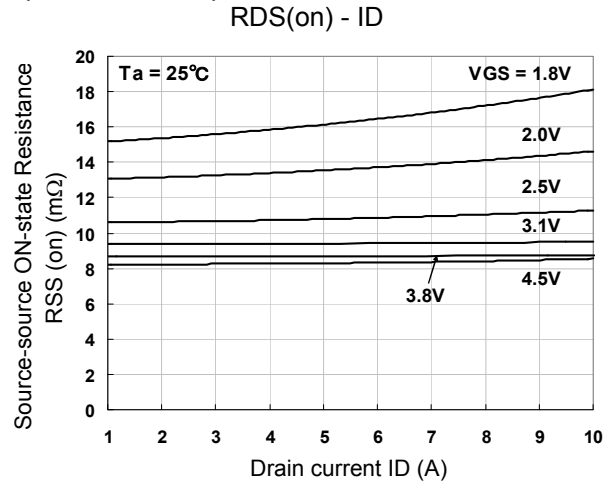
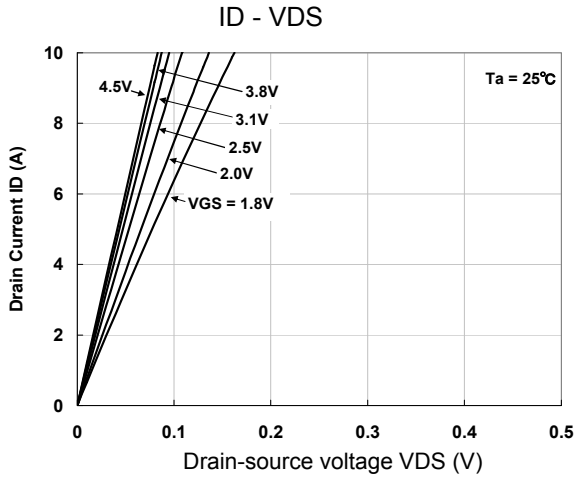


Figure3: Measurement circuit for Turn-on delay time / Rise time / Turn-off delay time / Fall time

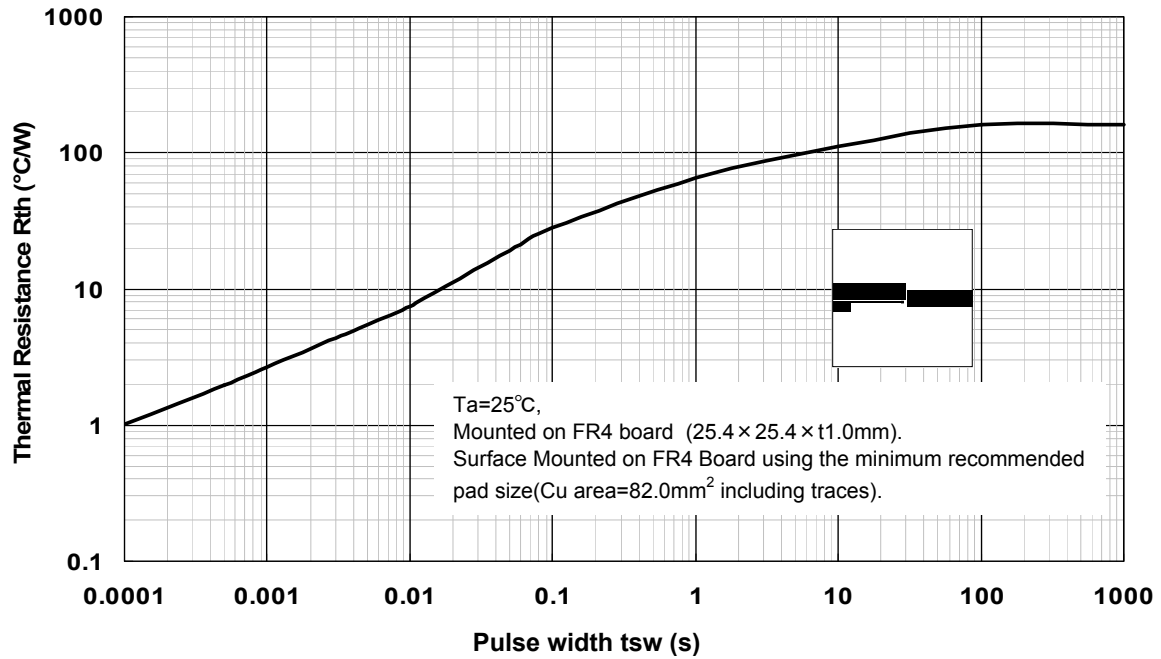


Technical Data ( reference )

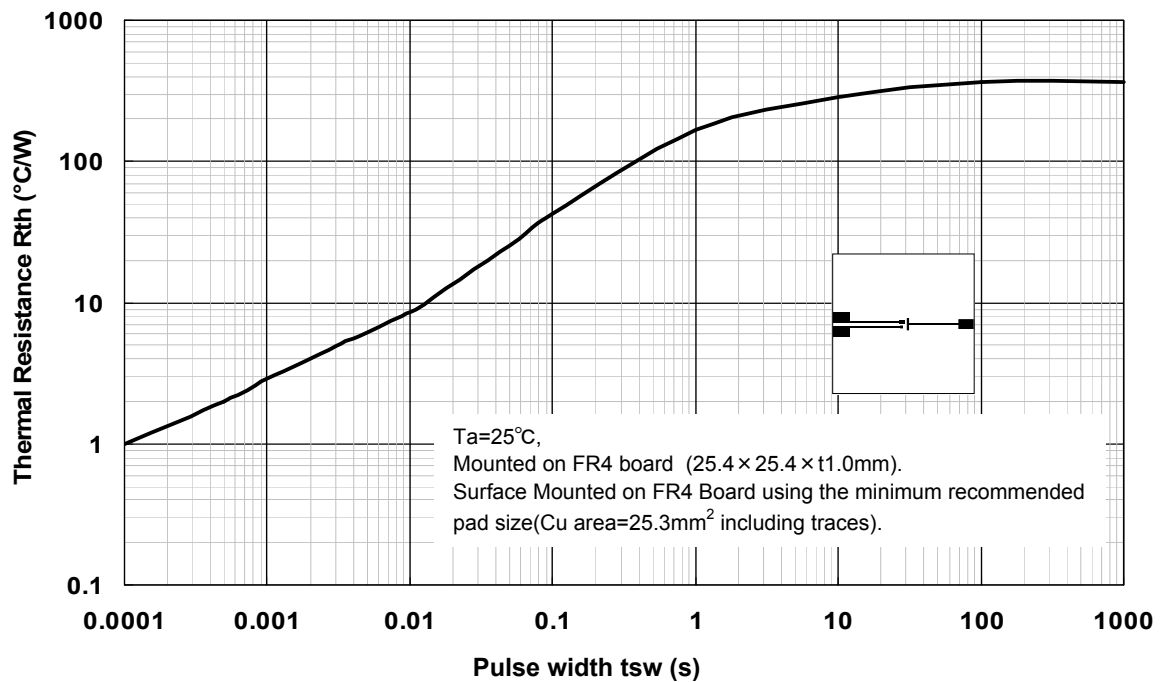


Technical Data ( reference )

Rth - tsw

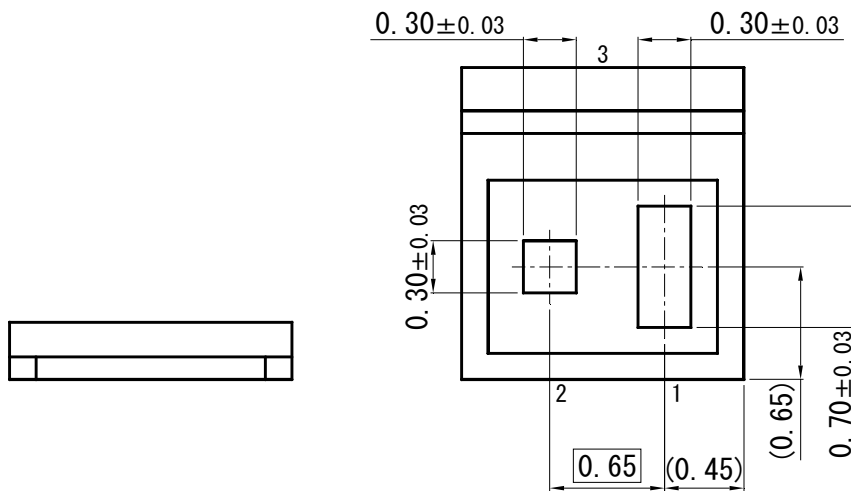
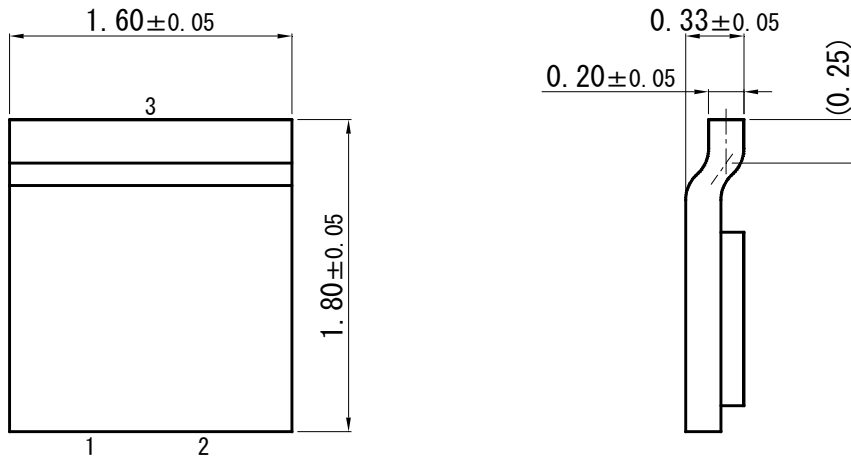


Rth - tsw

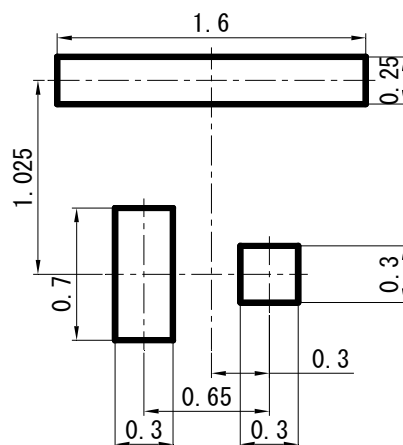


PMCP-1816-Z1

Unit: mm



■ Land Pattern (Reference) (Unit: mm)



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