

Notification about the transfer of the semiconductor business

The semiconductor business of Panasonic Corporation was transferred on September 1, 2020 to Nuvoton Technology Corporation (hereinafter referred to as "Nuvoton"). Accordingly, Panasonic Semiconductor Solutions Co., Ltd. became under the umbrella of the Nuvoton Group, with the new name of Nuvoton Technology Corporation Japan (hereinafter referred to as "NTCJ").

In accordance with this transfer, semiconductor products will be handled as NTCJ-made products after September 1, 2020. However, such products will be continuously sold through Panasonic Corporation.

Publisher of this Document is NTCJ.

If you would find description "Panasonic" or "Panasonic semiconductor solutions", please replace it with NTCJ.

※ Except below description page

"Request for your special attention and precautions in using the technical information and semiconductors described in this book"

Nuvoton Technology Corporation Japan



FC7P23440L

Dual N-channel MOS FET

For lithium-ion secondary battery protection circuits
For load switching

■ Features

- Low source-source ON resistance:RSS(on) typ. = 2.0 mΩ (VGS = 10 V)
- Low threshold voltage: 4.5 V drive
- Halogen-free / RoHS compliant (EU RoHS / UL-94 V-0 / MSL : Level 1)
- Metal package with enhanced thermal conduction design
- Minimized the junction to foot thermal resistance
- Compatible with conventional SMT assembly and test techniques

■ Marking Symbol: AC

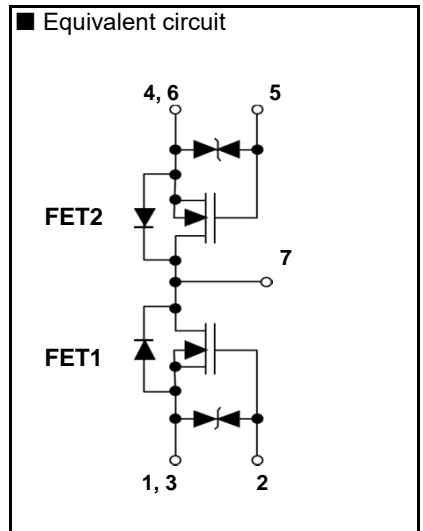
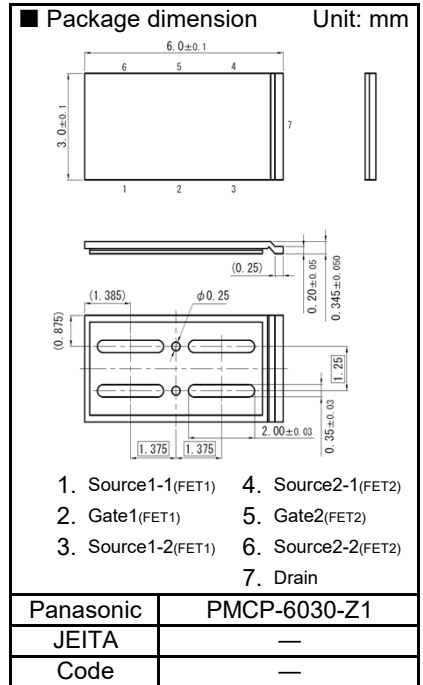
■ Packaging

Embossed type (Thermo-compression sealing) : 6 000 pcs / reel (standard)

■ Absolute Maximum Ratings Ta = 25 °C

Parameter	Symbol	Rating	Unit	
Source-source Voltage	VSS	30	V	
Gate-source Voltage	VGS	±20		
Source Current	DC ^{*1}	IS1	19	A
	DC ^{*2}	IS2	30	
	Pulsed ^{*3}	ISp	90	
Total Power Dissipation	DC ^{*1}	PD1	1.0	W
	DC ^{*2}	PD2	2.4	
Thermal Resistance Junction to Ambient	DC ^{*1}	Rθja1	125	°C / W
	DC ^{*2}	Rθja2	52	
Channel Temperature	Tch	150	°C	
Storage Temperature Range	Tstg	-55 to +150		

- Note *1 Mounted on FR4 board (25.4mm x 25.4mm x t1.0mm) using the minimum recommended pad size (36μm Copper).
*2 Mounted on FR4 board (25.4mm x 25.4mm x t1.0mm) coated with copper foil $\geq 500 \text{ mm}^2$ (36μm Copper).
*3 t = 10μs, Duty Cycle $\leq 1 \%$



■ Electrical Characteristics Ta = 25 °C ± 3 °C

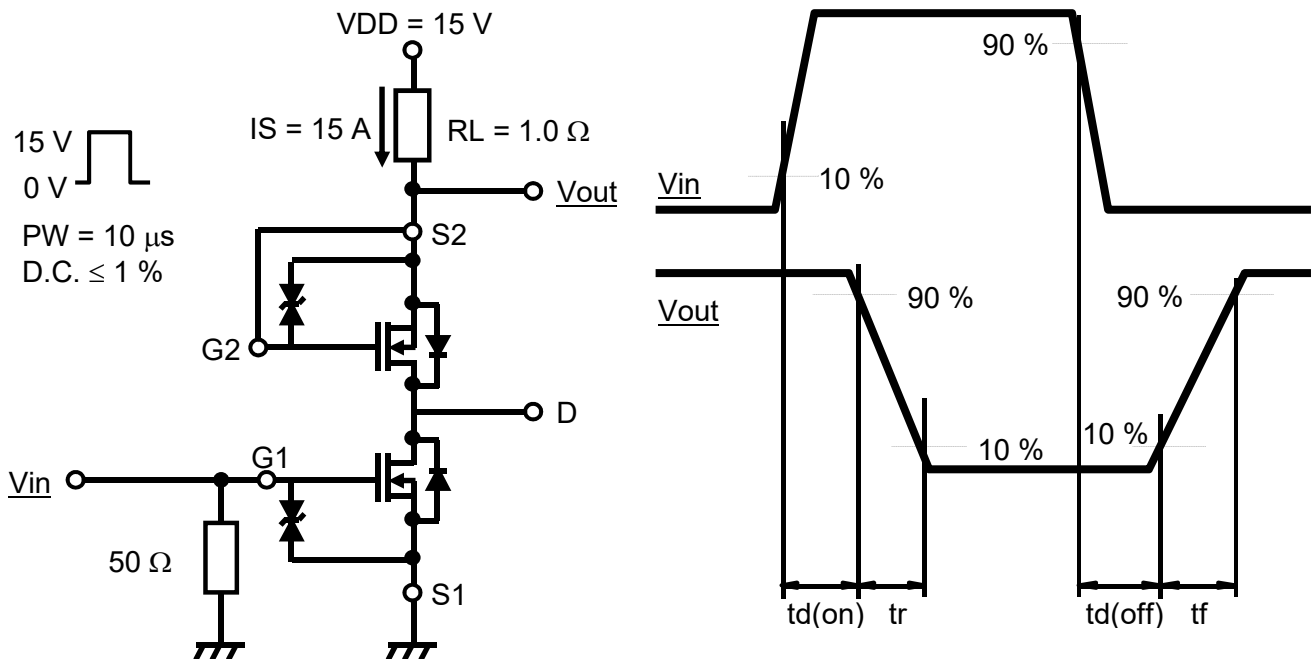
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Source-source Breakdown Voltage	VSSS	IS = 1 mA, VGS = 0 V	30			V
Zero Gate Voltage Source Current	ISSS	VSS = 30 V, VGS = 0 V			1.0	μA
Gate-source Leakage Current	IGSS	VGS = ±20 V, VSS = 0 V			±10	μA
Gate-source Threshold Voltage	Vth	IS = 2.68 mA, VSS = 10 V	1.0	2.0	3.0	V
Source-source On-state Resistance	RSS(on)1	IS = 15 A, VGS = 10 V	1.2	2.0	2.6	mΩ
	RSS(on)2	IS = 15 A, VGS = 8.0 V	1.3	2.2	3.3	
	RSS(on)3	IS = 15 A, VGS = 4.5 V	2.0	3.4	5.1	
Input Capacitance ^{*1}	Ciss	VSS = 10 V, VGS = 0 V, f = 1 MHz		4800		pF
Output Capacitance ^{*1}	Coss			690		
Reverse Transfer Capacitance ^{*1}	Crss			440		
Turn-on Delay Time ^{*1,*2}	td(on)		VDD = 15 V, VGS = 0 to 10 V		75	
Rise Time ^{*1,*2}	tr	IS = 15 A		430		
Turn-off Delay Time ^{*1,*2}	td(off)	VDD = 15 V, VGS = 10 to 0 V		220		ns
Fall Time ^{*1,*2}	tf	IS = 15 A		170		
Total Gate Charge ^{*1}	Qg	VDD = 15 V		85		nC
Gate-source Charge ^{*1}	Qgs	VGS = 0 to 10 V		15		
Gate-drain Charge ^{*1}	Qgd	IS = 30 A		10		
Body Diode Forward Voltage	VF(S-S)	IF = 15 A, VGS = 0 V		0.8	1.2	V

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

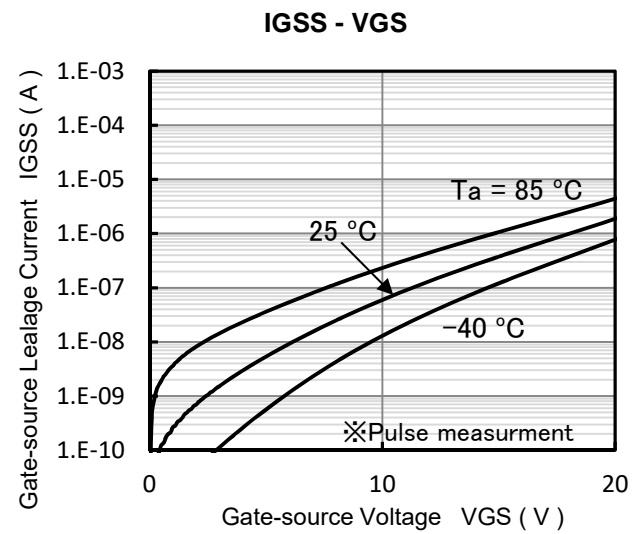
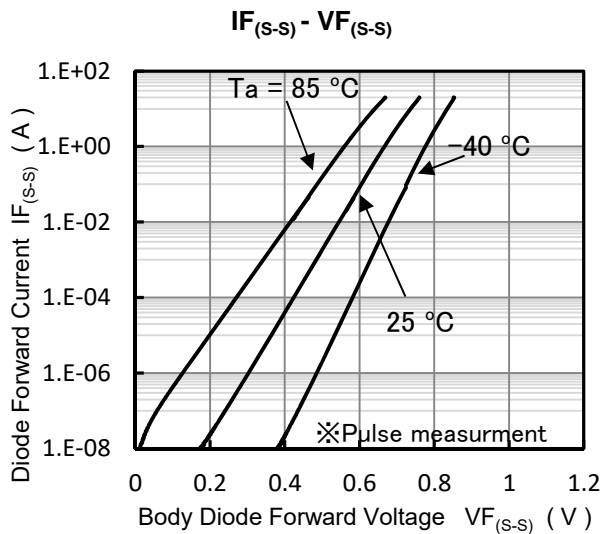
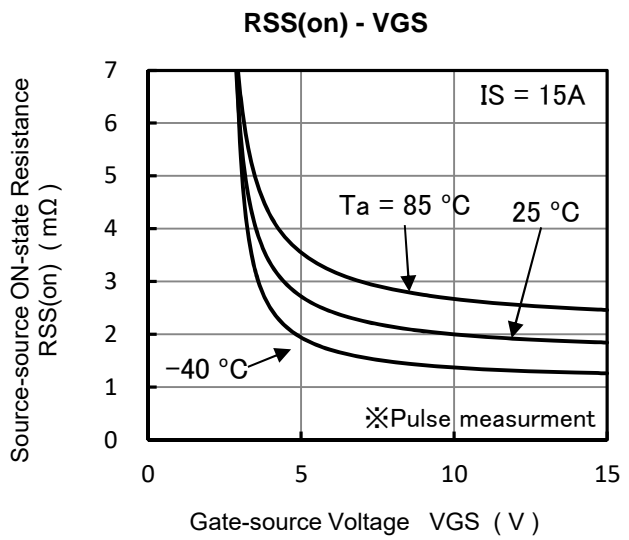
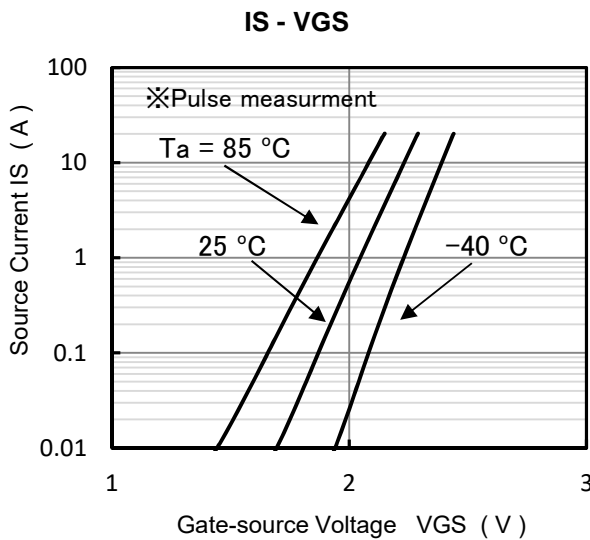
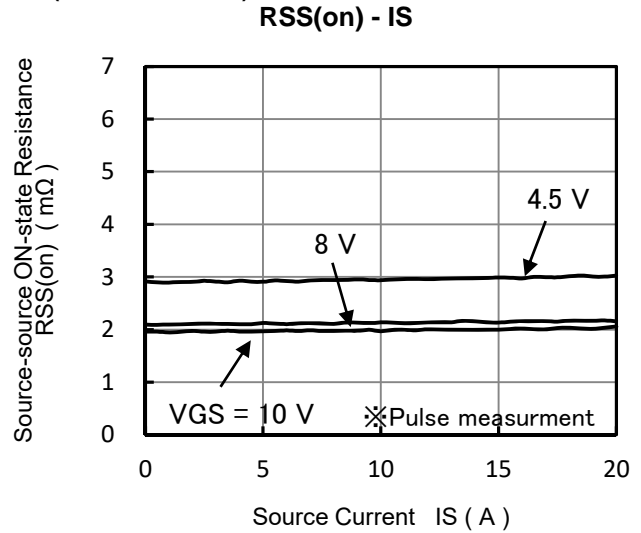
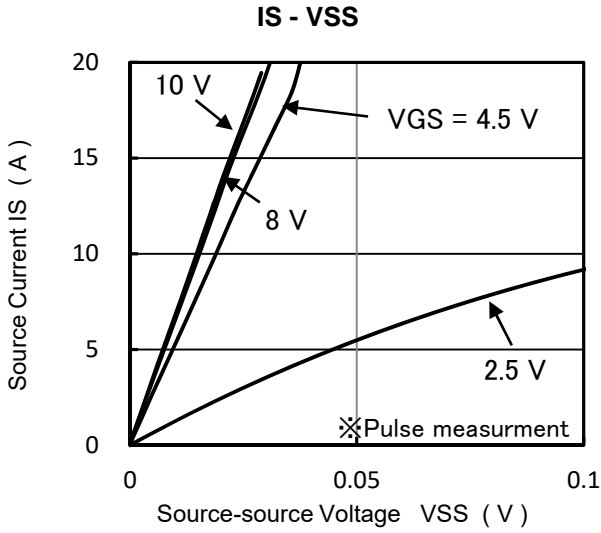
*2 Measurement circuit for Turn-on Delay Time / Rise Time / Turn-off Delay Time / Fall Time

Note2: Measurement circuit

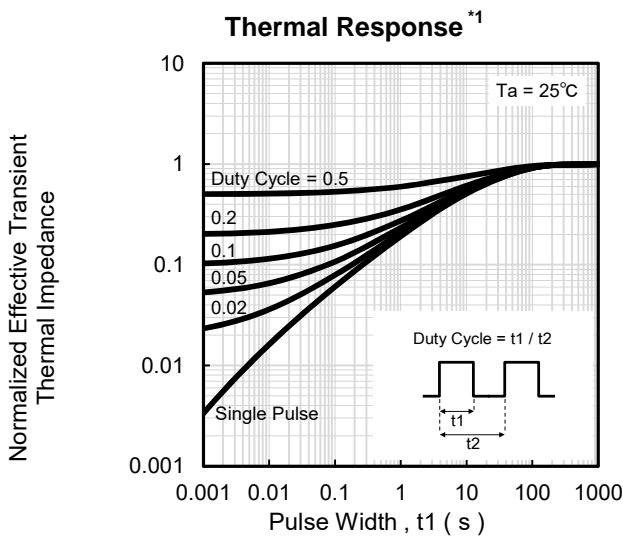
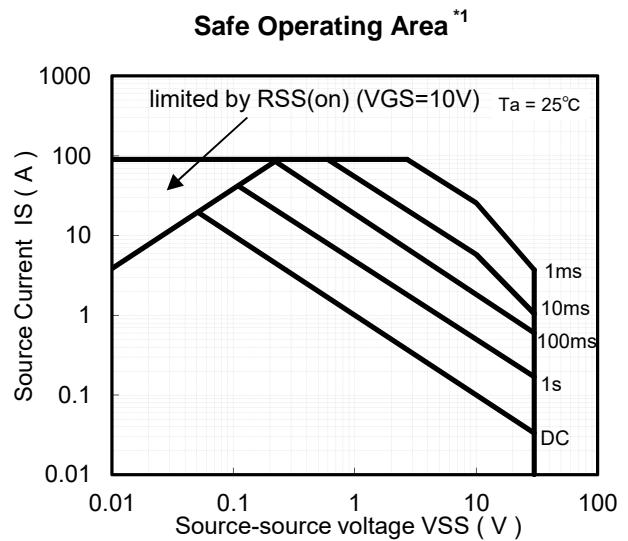
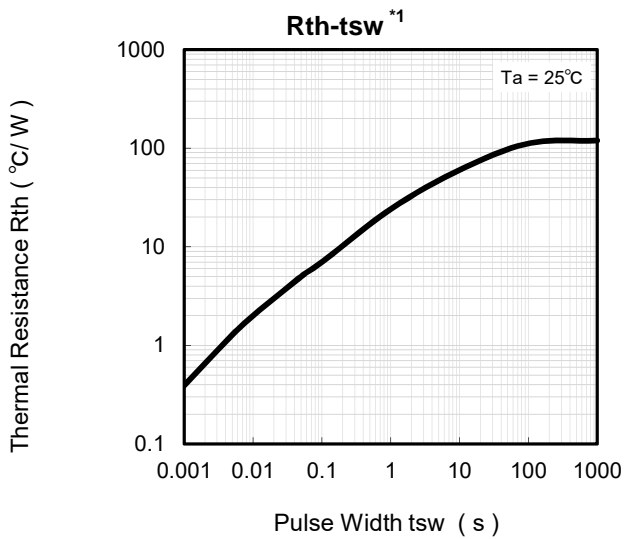
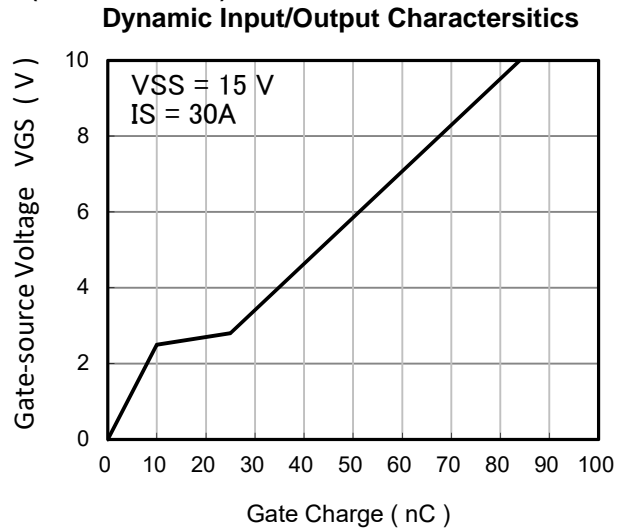
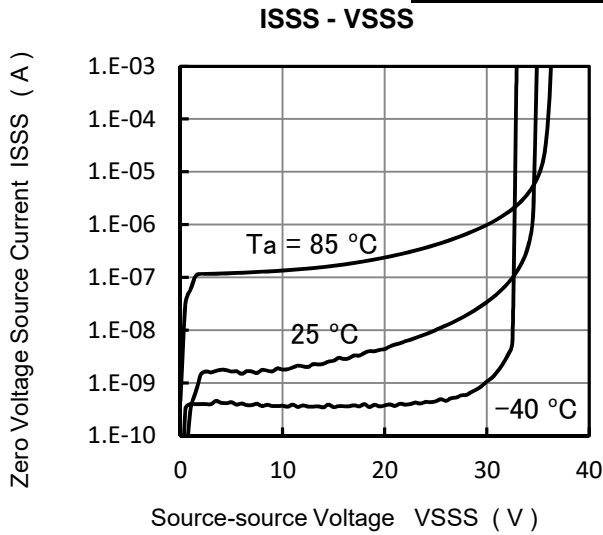




Technical Data (reference)



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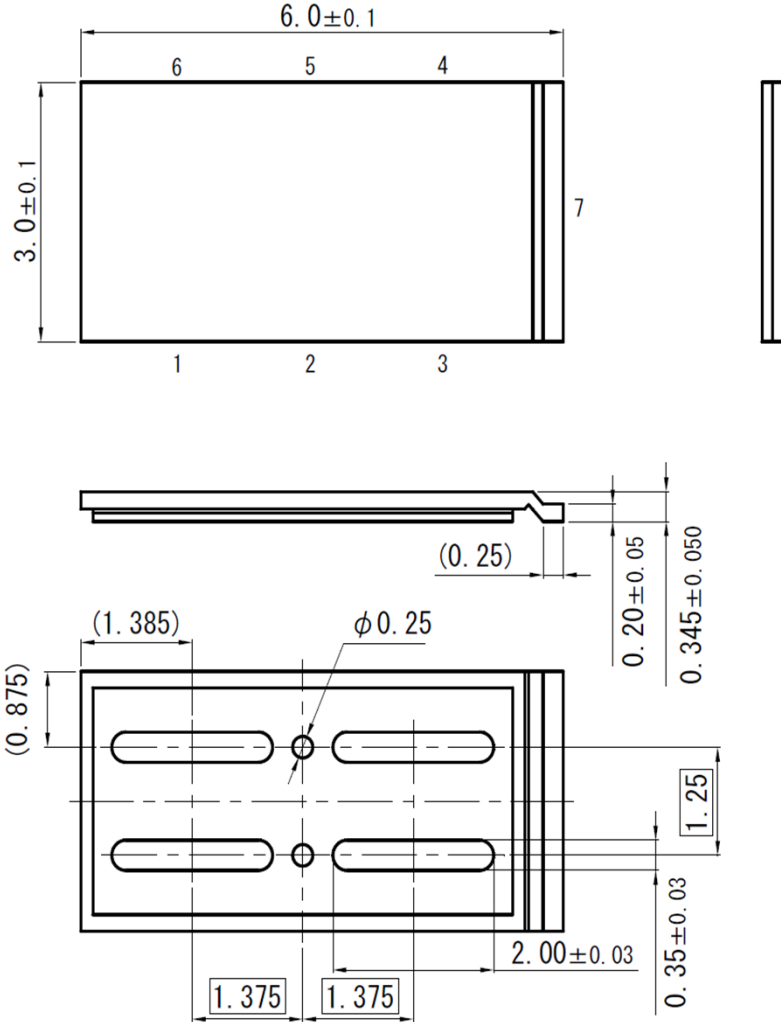


Note

*1 Mounted on FR4 board (25.4mm x 25.4mm x t1.0mm) using the minimum recommended pad size (36mm Copper).

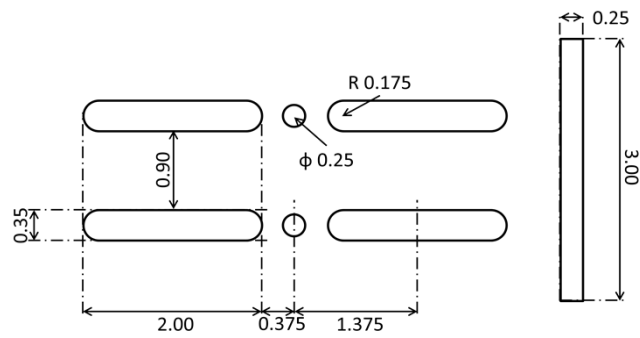
■ Outline (PMCP-6030-Z1)

Unit: mm



■ Land Pattern (Reference)

Unit: mm



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