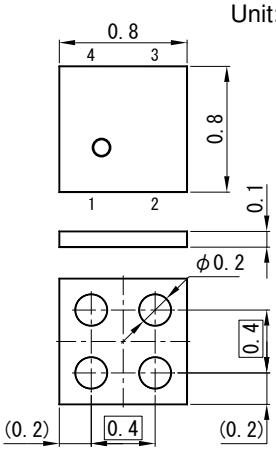
FC4B21320L1

Gate resistor installed Dual N-channel MOS FET

For lithium-ion secondary battery protection circuits

Unit: mm



1. Source1 (FET1) 3. Gate2 (FET2)
2. Gate1 (FET1) 4. Source2 (FET2)

Panasonic	XLGA004-W-0808-RA
JEITA	—
Code	—

■ Features

- Source-source ON resistance:Rss(on) typ. = 39 mΩ（VGS = 3.8 V)
- CSP(Chip Size Package)
- RoHS compliant (EU RoHS / MSL:Level 1 compliant)

■ Marking Symbol: 2D

■ Packaging

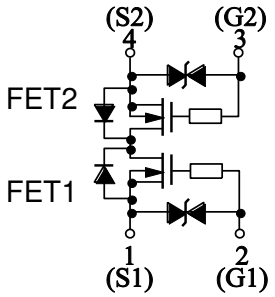
Embossed type (Thermo-compression sealing) : 1 000 pcs / reel (standard)

■ Absolute Maximum Ratings Ta = 25 °C

Parameter	Symbol	Rating	Unit
Source-source Voltage	VSS	12	V
Gate-source Voltage	VGS	±8	V
Source Current (DC)	IS *1	2.5	A
	IS *2	4	A
Source Current (Pulsed)	ISp *3	25	A
Total Power Dissipation	PD *1	0.34	W
	PD *2	0.9	W
Channel Temperature	Tch	150	°C
Storage Temperature Range	Tstg	-55 to +150	°C
Thermal Resistance (ch-a)	Rth *1	368	°C/W
	Rth *2	139	°C/W

Note *1 Mounted on FR4 board (25.4 mm × 25.4 mm × t1.0 mm)
using the minimum recommended pad size (36μm Copper).
*2 Mounted on Ceramic substrate (70 mm × 70 mm × t1.0 mm).
*3 t = 10 μs, Duty Cycle ≤ 1 %

Equivalent circuit



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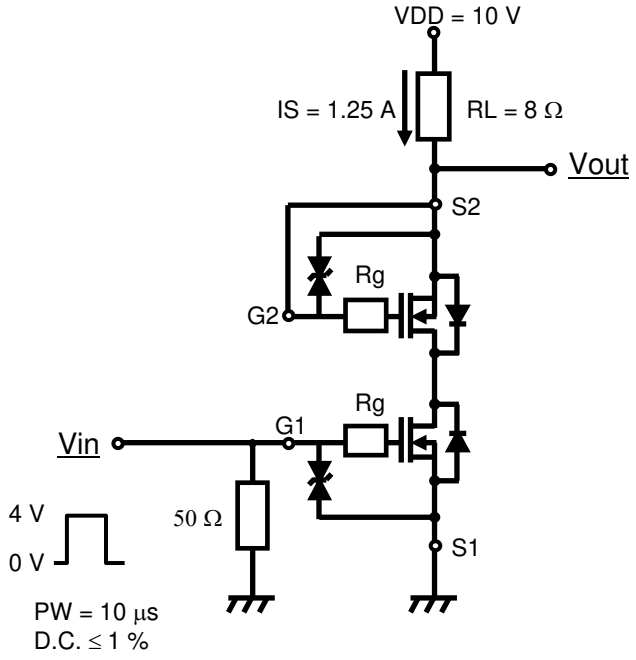
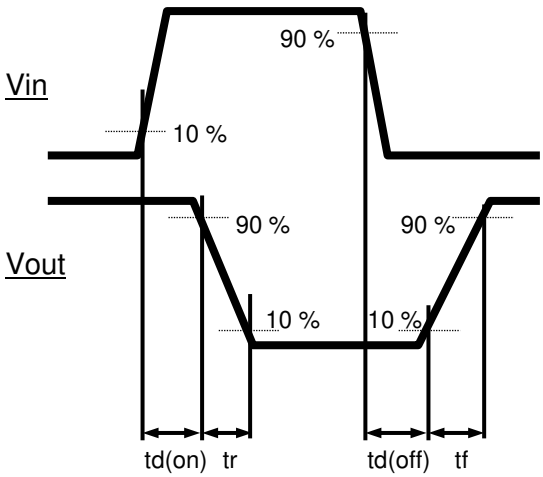
■ Electrical Characteristics Ta = 25 °C ± 3 °C

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Source-source Breakdown Voltage	VSSS	IS = 1 mA, VGS = 0 V	12			V
Zero Gate Voltage Source Current	ISSS	VSS = 12 V, VGS = 0 V			1.0	μA
Gate-source Leakage Current	IGSS	VGS = ±8 V, VSS = 0 V			±10	μA
		VGS = ±5 V, VSS = 0 V			±1.0	
Gate-source Threshold Voltage	Vth	IS = 0.07 mA, VSS = 10 V	0.35	0.9	1.4	V
Source-source On-state Resistance	RSS(on)1	IS = 1.25 A, VGS = 4.5 V	27	36	48	mΩ
	RSS(on)2	IS = 1.25 A, VGS = 3.8 V	29	39	53	
	RSS(on)3	IS = 1.25 A, VGS = 3.1 V	32	45	75	
	RSS(on)4	IS = 1.25 A, VGS = 2.5 V	35	58	115	
Body Diode Forward Voltage	VF(s-s)	IF = 1.25 A, VGS = 0 V		0.6	1.2	V
Input Capacitance *1	Ciss	VSS = 10 V, VGS = 0 V, f = 1 MHz		205		pF
Output Capacitance *1	Coss			50		
Reverse Transfer Capacitance *1	Crss			40		
Turn-on delay Time *1,*2	td(on)	VDD = 10 V, VGS = 0 to 4.0 V		0.10		μs
Rise Time *1,*2	tr	IS = 1.25 A		0.15		
Turn-off delay Time *1,*2	td(off)	VDD = 10 V, VGS = 4.0 to 0 V		0.50		μs
Fall Time *1,*2	tf	IS = 1.25 A		0.30		
Total Gate Charge *1	Qg	VDD = 10 V		3.5		nC
Gate-source Charge *1	Qgs	VGS = 0 to 4.0 V,		0.8		
Gate-drain Charge *1	Qgd	IS = 1.25 A		1.0		

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

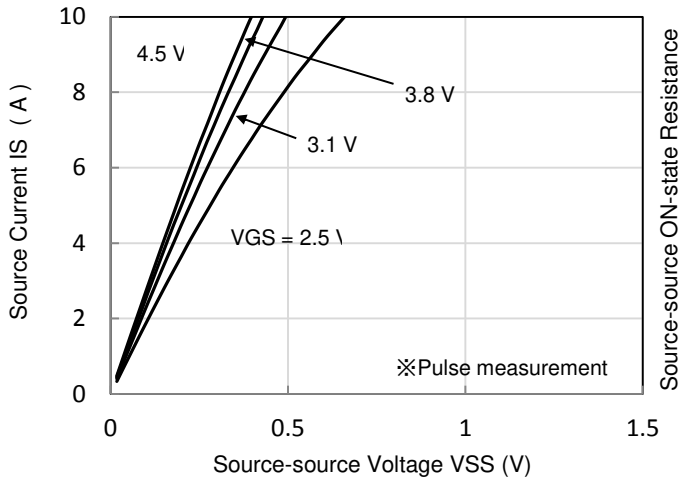




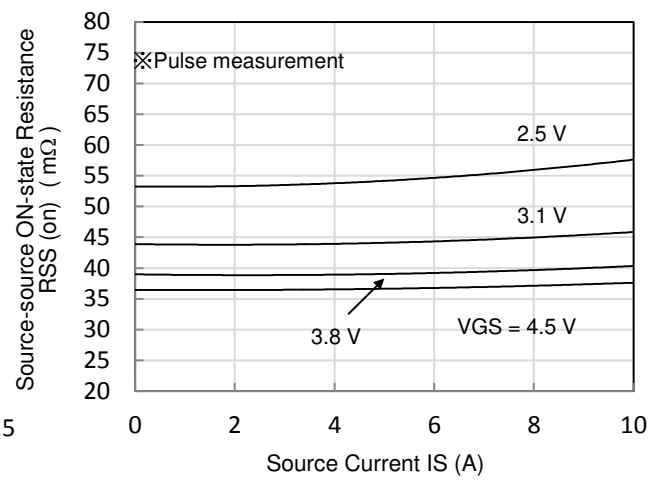
Established : 2015-10-23
Revised : ####-##-##

Technical Data (reference)

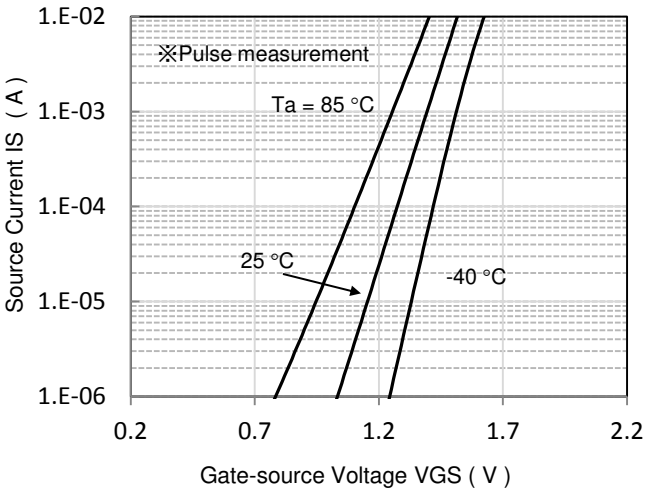
IS - VSS



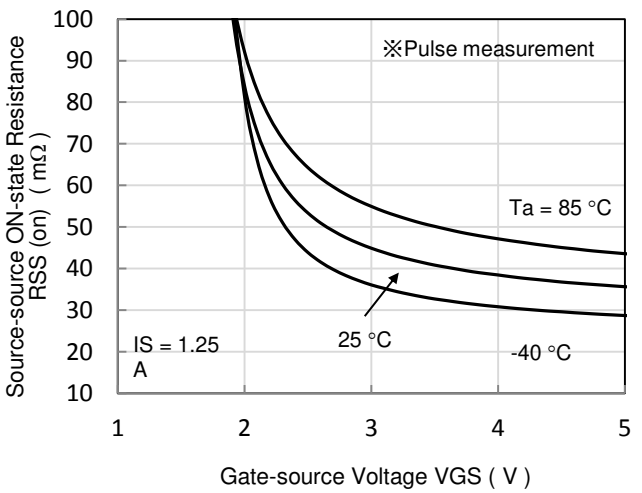
RSS(on) - IS



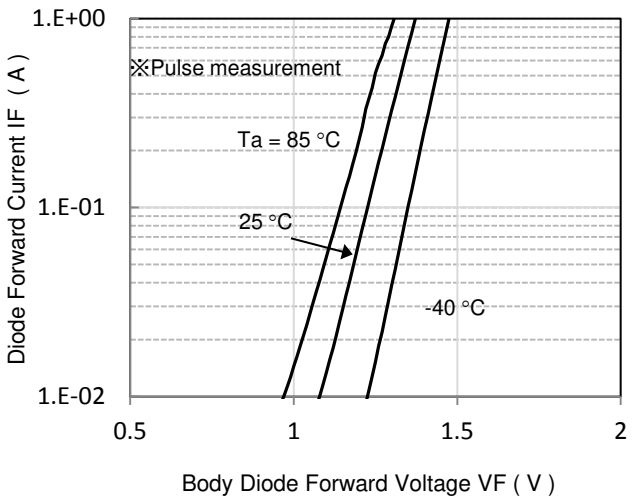
IS - VGS



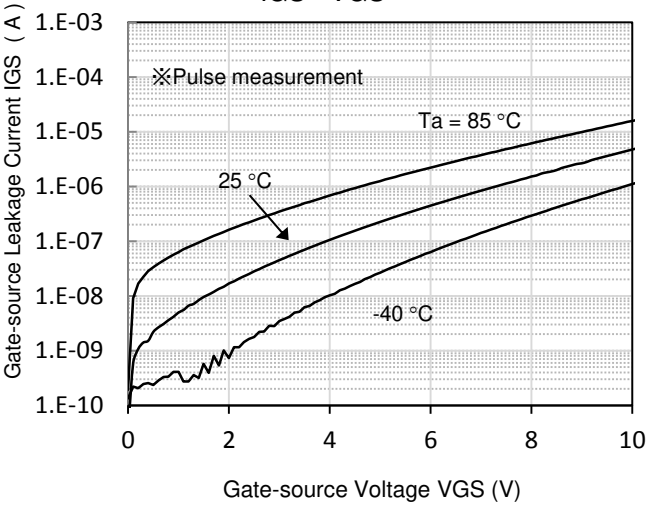
RSS(on) - VGS



IF - VF



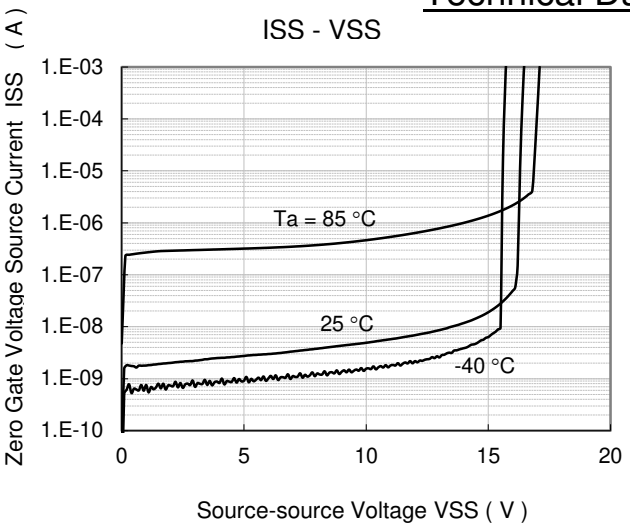
IGS - VGS



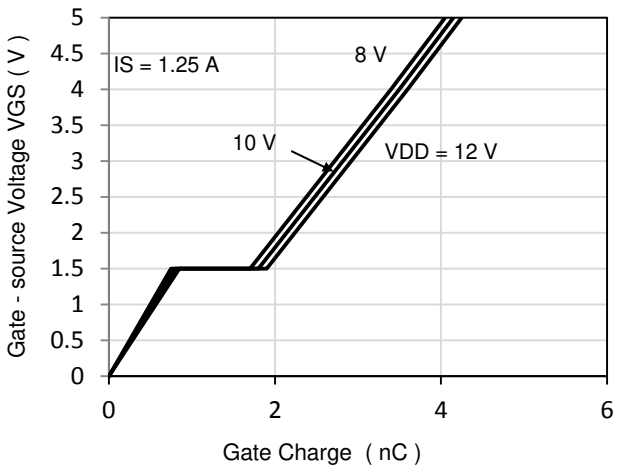
Established : 2015-10-23
Revised : ####-##-##

Technical Data (reference)

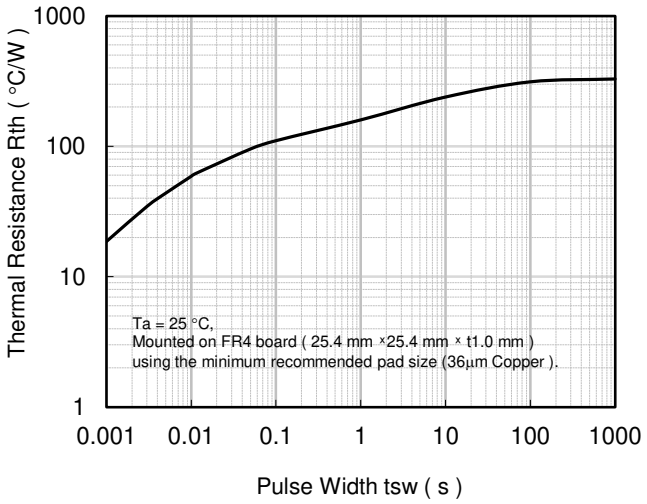
ISS - VSS



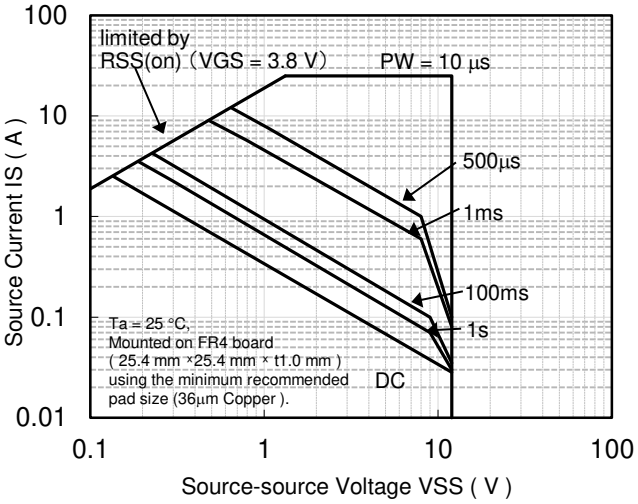
Dynamic Input/Output Characteristics



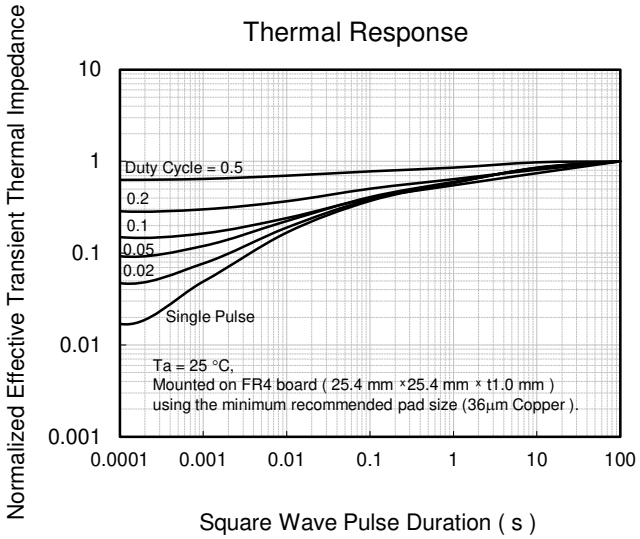
Rth - tsw



Safe Operating Area



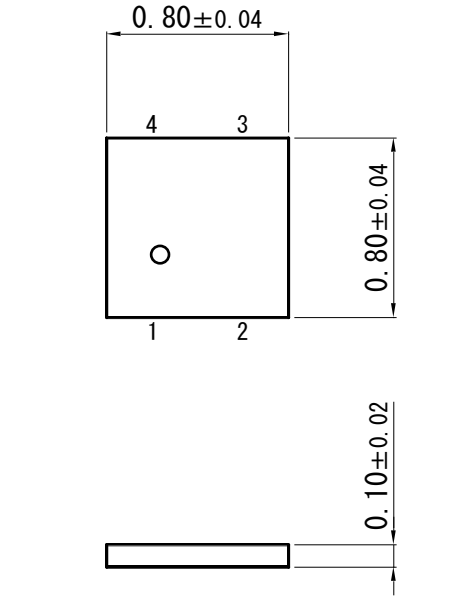
Thermal Response



Established : 2015-10-23
Revised : ####-##-##

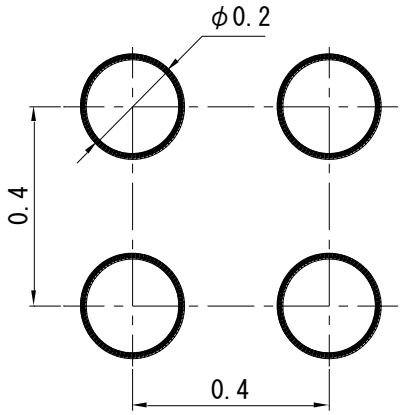
■ Outline (XLGA004-W-0808-RA)

Unit: mm



■ Land Pattern (Reference)

Unit: mm



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