

Single P-channel MOSFET

KFJ4B01120L Data Sheet

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1. GENERAL DESCRIPTION

Single P-channel MOSFET

2. FEATURES

- Drain-source On-state resistance: RDS(on) typ. = 40 mΩ (VGS = -2.5 V)
- CSP (Chip Size Package)
- Halogen-free / RoHS compliant (EU RoHS / UL-94 V-0 / MSL: Level 1)

3. MARKING SYMBOL: 1F

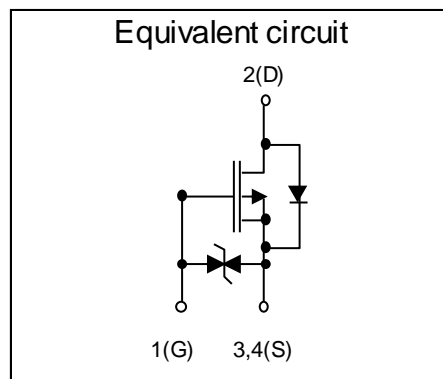
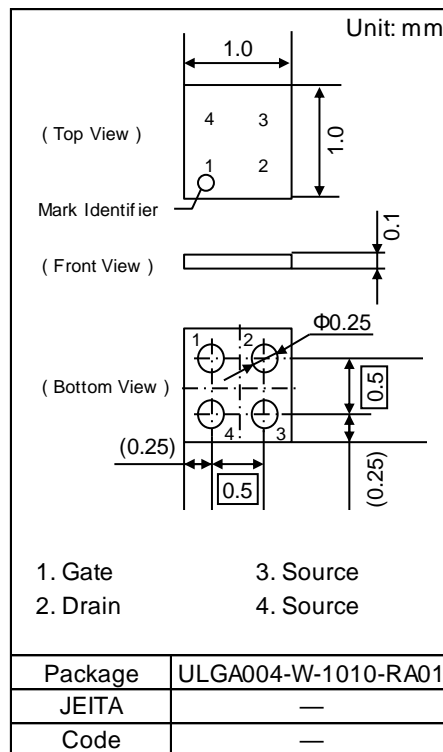
4. PACKAGING

Embossed type (Thermo-compression sealing): 20,000 pcs / reel (standard)

5. ABSOLUTE MAXIMUM RATINGS Ta = 25 °C

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	VDS	-12	V	
Gate-Source Voltage	VGS	±8	V	
Drain Current	DC	ID1 ^{*1}	-2.6	A
		ID2 ^{*2}	-4.2	A
		ID3 ^{*3}	-5.4	A
	Pulsed ^{*4}	IDp1	-20	A
		IDp2	-33	A
		IDp3	-43	A
Total Power Dissipation	PD1 ^{*1}	0.37	W	
	PD2 ^{*2}	0.94	W	
	PD3 ^{*3}	1.5	W	
Channel Temperature	Tch	150	°C	
Operating Ambient Temperature	Topr	-40 to +85	°C	
Storage Temperature Range	Tstg	-55 to +150	°C	

- Note
- *1 FR4 board (25.4 mm x 25.4 mm x t1.0 mm), Min Cu 36mm² Copper.
 - *2 FR4 board (25.4 mm x 25.4 mm x t1.0 mm), Full Cu.
 - *3 Ceramic substrate (70 mm x 70 mm x t1.0 mm).
 - *4 t = 10 μs, Duty Cycle ≤ 1 %



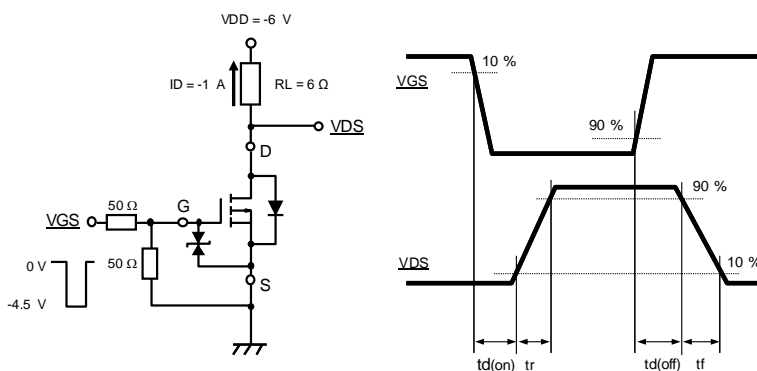
6. ELECTRICAL CHARACTERISTICS Ta = 25 °C ± 3 °C

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	VDSS	ID = -1 mA, VGS = 0	-12			V
Zero Gate Voltage Drain Current	IDSS	VDS = -12 V, VGS = 0			-1	μA
Gate-Source Leakage Current	IGSS	VGS = ±8 V, VDS = 0 V			±10	μA
Gate-Source Threshold Voltage	Vth	ID = -2 mA, VDS = -10 V	-0.3		-1.0	V
Drain-Source On-state Resistance	RDS(on)1	ID = -2 A, VGS = -4.5 V		34	51	mΩ
	RDS(on)2	ID = -2 A, VGS = -2.5 V		40	61	
	RDS(on)3	ID = -0.2 A, VGS = -1.8 V		48	85	
	RDS(on)4	ID = -0.1 A, VGS = -1.5 V		57	170	
Body Diode Forward Voltage	VF(s-d)	IF = -0.2 A, VGS = 0 V		-0.7	-1.2	V
Input Capacitance *1	Ciss	VDS = -10 V		814		pF
Output Capacitance *1	Coss	VGS = 0 V		201		
Reverse Transfer Capacitance *1	Crss	f = 1MHz		187		
Turn-on Delay Time *1,*2	td(on)	VDD = -6 V		6		ns
Rise Time *1,*2	tr	VGS = 0 to -4.5 V ID = -1.0 A		4		
Turn-off Delay Time *1,*2	td(off)	VDD = -6 V		63		
Fall Time *1,*2	tf	VGS = -4.5 to 0 V ID = -1.0 A		46		
Total Gate Charge *1	Qg	VDD = -6 V		10.7		nC
Gate-Source Charge *1	Qgs	VGS = 0 to -4.5 V		1.4		
Gate-Drain Charge *1	Qgd	ID = -1.0 A		2.1		

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

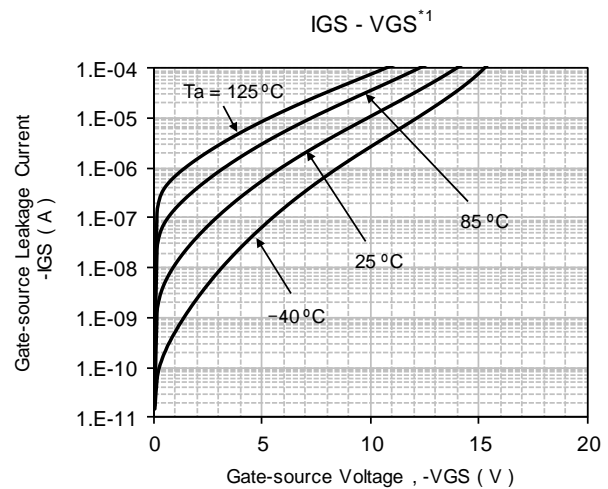
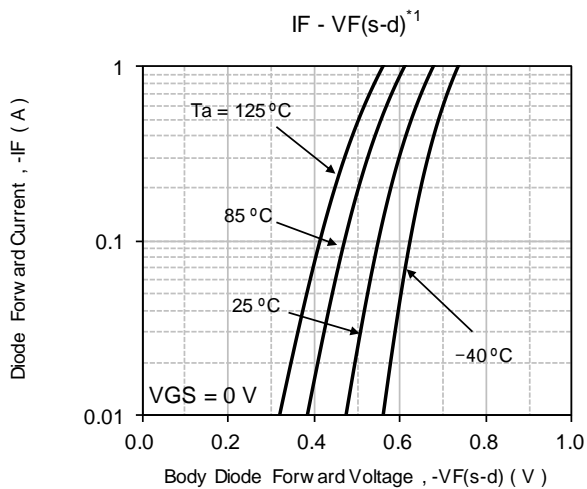
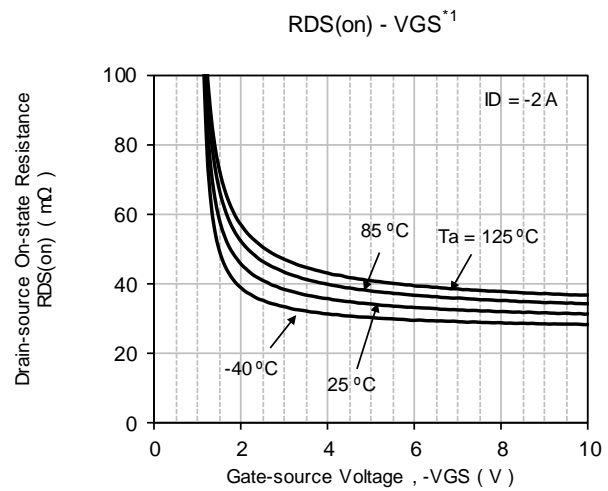
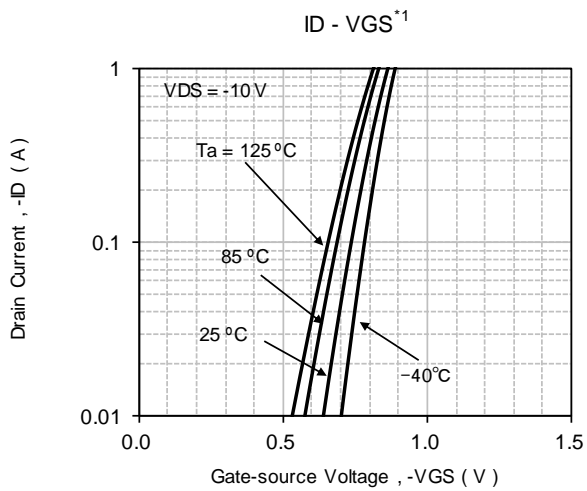
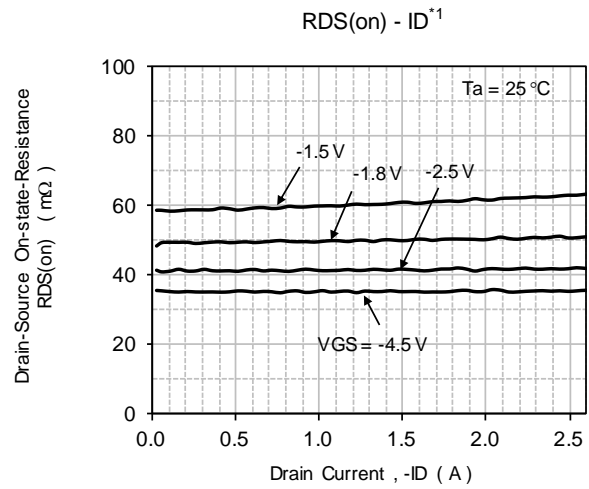
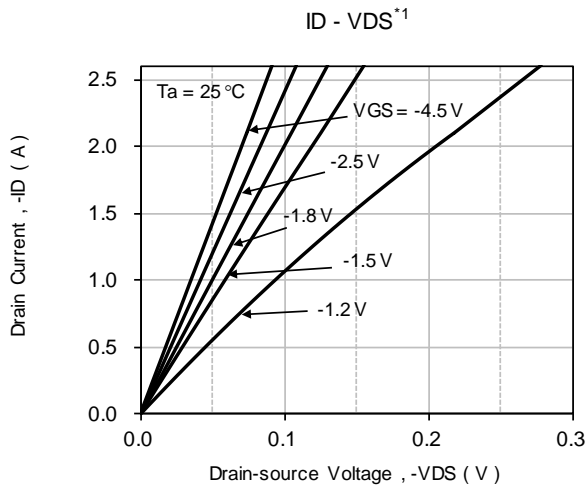
*2 Measurement circuit for Turn-on Delay Time / Rise Time / Turn-off Delay Time / Fall Time



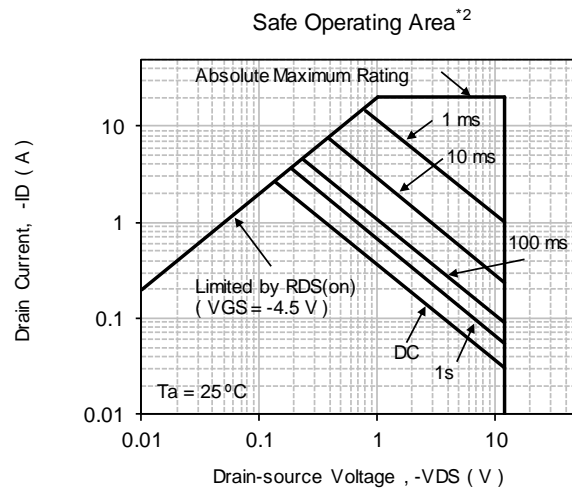
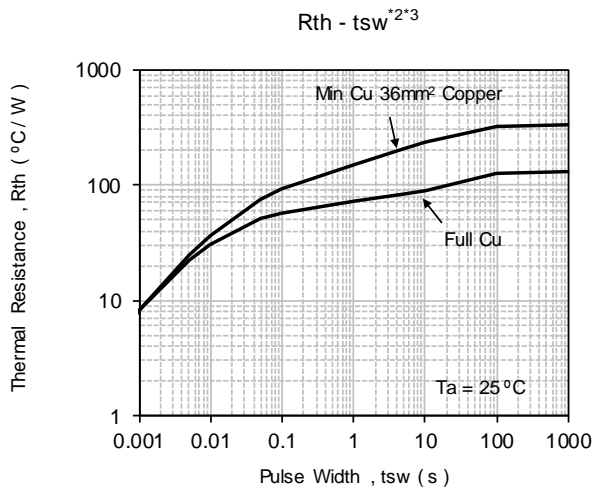
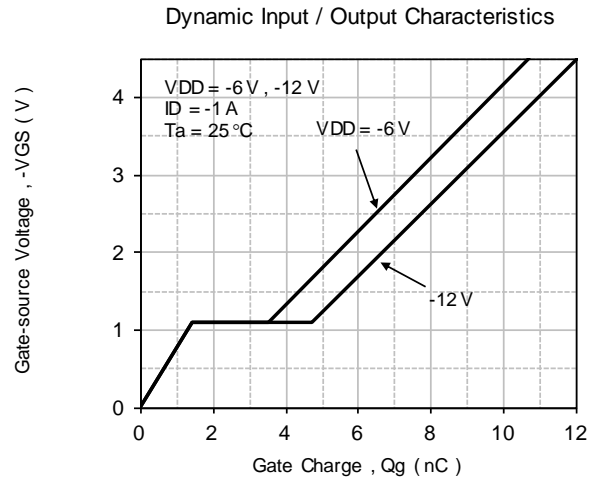
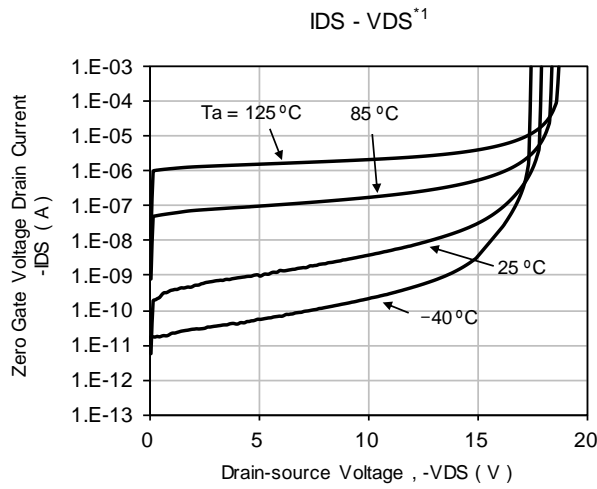
7. ELECTRICAL STATE DISCHARGE CHARACTERISTICS

Standard	Test Type	Symbol	Conditions	Class	Value	Unit
AEC-Q101	Human Body Model	HBM	C = 100 pF, R = 1.5 kΩ	H1C	> 1k to ≤ 2k	V
	Machine Model	MM	C = 200 pF, R = 0 Ω	M2	> 100 to ≤ 200	V

8. TECHNICAL DATA (Reference)



TECHNICAL DATA (Reference)

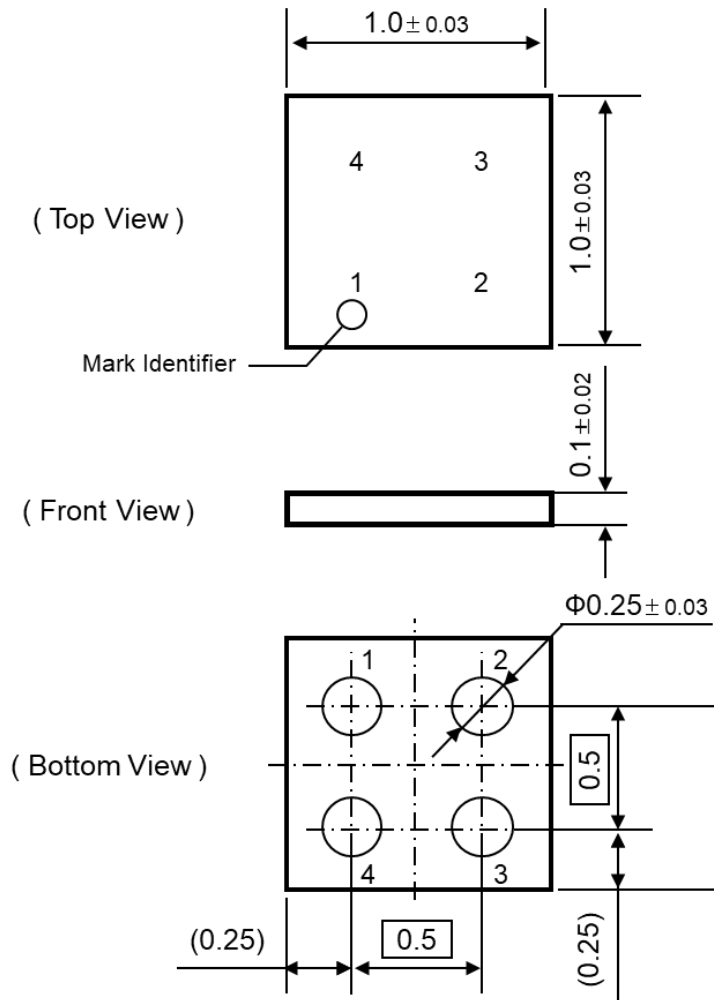


Note

- *1 Pulse measurement
- *2 FR4 board (25.4mmx25.4mmxt1.0mm), Min Cu 36mm² Copper.
- *3 FR4 board (25.4mmx25.4mmxt1.0mm), Full Cu.

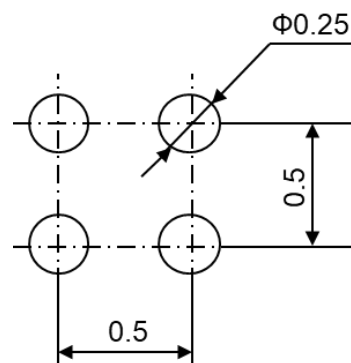
9. OUTLINE

Unit : mm



10. LAND & STENCIL PATTERN (Reference)

Unit : mm



11. REVISION HISTORY

Date	Revision	Description
2021.2.5	1.00	1. initially issued.

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