

# FG6K42060L

Silicon N-channel MOSFET (FET1)

Silicon P-channel MOSFET (FET2)

For Switching

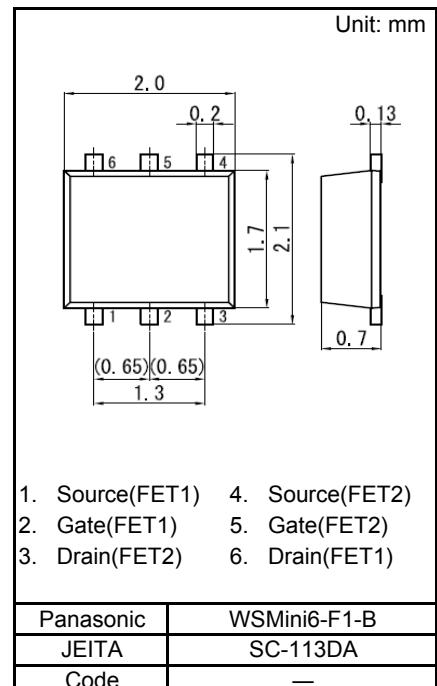
## ■ Features

- Low drain-source ON resistance: RDS(on)typ.  
N-ch = 2 Ω (VGS = 4.0 V) P-ch: 95 mΩ (VGS = -4.0 V)
- Halogen-free / RoHS compliant  
(EU RoHS / UL-94 V-0 / MSL:Level 1 compliant)

## ■ Marking Symbol: Y7

## ■ Packaging

FG6K42060L Embossed type (Thermo-compression sealing):  
3 000 pcs / reel (standard)



- |                 |                 |
|-----------------|-----------------|
| 1. Source(FET1) | 4. Source(FET2) |
| 2. Gate(FET1)   | 5. Gate(FET2)   |
| 3. Drain(FET2)  | 6. Drain(FET1)  |

Panasonic	WSMini6-F1-B
JEITA	SC-113DA
Code	—

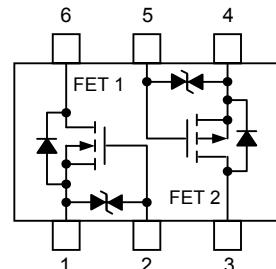
## ■ Absolute Maximum Ratings Ta = 25 °C

Parameter		Symbol	Rating	Unit
FET1 (Nch.)	Drain-source Voltage	VDS	30	V
	Gate-source Voltage	VGS	±12	V
	Drain Current	ID	100	mA
	Drain Current (Pulsed)	IDp	200	mA
FET2 (Pch.)	Drain-source Voltage	VDS	-20	V
	Gate-source Voltage	VGS	±10	V
	Drain Current	ID	-2	A
	Drain Current (Pulsed)	IDp	-8	A
Overall	Total Power Dissipation <sup>**1</sup>	PD	700	mW
	Channel Temperature	Tch	150	°C
	Storage Temperature	Tstg	-55 to +150	°C

Note: \*1 Measuring on ceramic substrate at 40 mm × 38 mm × 0.1 mm.

PD absolute maximum rating Non-heat sink: 150 mW.

## Internal Connection



## Pin name

- |                 |                 |
|-----------------|-----------------|
| 1. Source(FET1) | 4. Source(FET2) |
| 2. Gate(FET1)   | 5. Gate(FET2)   |
| 3. Drain(FET2)  | 6. Drain(FET1)  |

■ Electrical Characteristics  $T_a = 25 \text{ }^{\circ}\text{C} \pm 3 \text{ }^{\circ}\text{C}$   
FET1(Nch.)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source Breakdown Voltage	VDSS	ID = 1 mA, VGS = 0 V	30			V
Zero Gate Voltage Drain Current	IDSS	VDS = 30 V, VGS = 0 V			1.0	$\mu\text{A}$
Gate-source Leakage Current	IGSS	VGS = $\pm 10$ V, VDS = 0 V			$\pm 10$	$\mu\text{A}$
Gate-source Threshold Voltage	Vth	ID = 1.0 $\mu\text{A}$ , VDS = 3.0 V	0.5	1	1.5	V
Drain-source On-state Resistance <sup>*1</sup>	RDS(on)1	ID = 10 mA, VGS = 2.5 V		3	6	$\Omega$
	RDS(on)2	ID = 10 mA, VGS = 4.0 V		2	3	
Forward transfer admittance <sup>*1</sup>	Yfs	ID = 10 mA, VDS = 3.0 V	20	55		mS
Input Capacitance	Ciss	VDS = 3.0 V, VGS = 0 V, f = 1 MHz		12		pF
Output Capacitance	Coss			7		
Reverse Transfer Capacitance	Crss			3		
Turn-on Time <sup>*2</sup>	ton	VDD = 3.0 V, VGS = 0 to 3.0 V ID = 10 mA		100		ns
Turn-off Time <sup>*2</sup>	toff	VDD = 3.0 V, VGS = 3.0 to 0 V ID = 10 mA		100		ns

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

\*1 Pulse measurement

\*2 See Test circuit.

## FET2(Pch.)

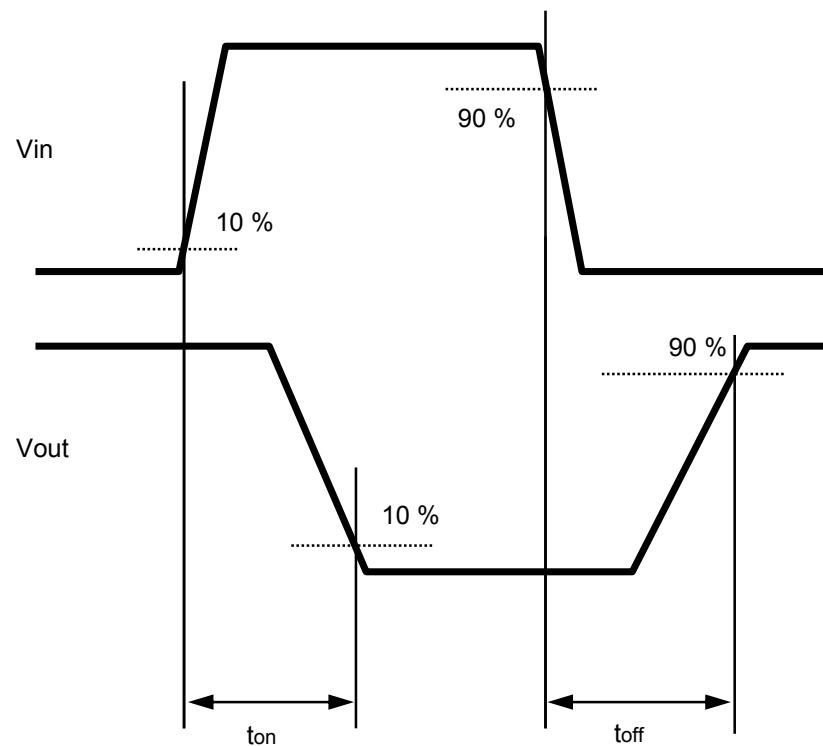
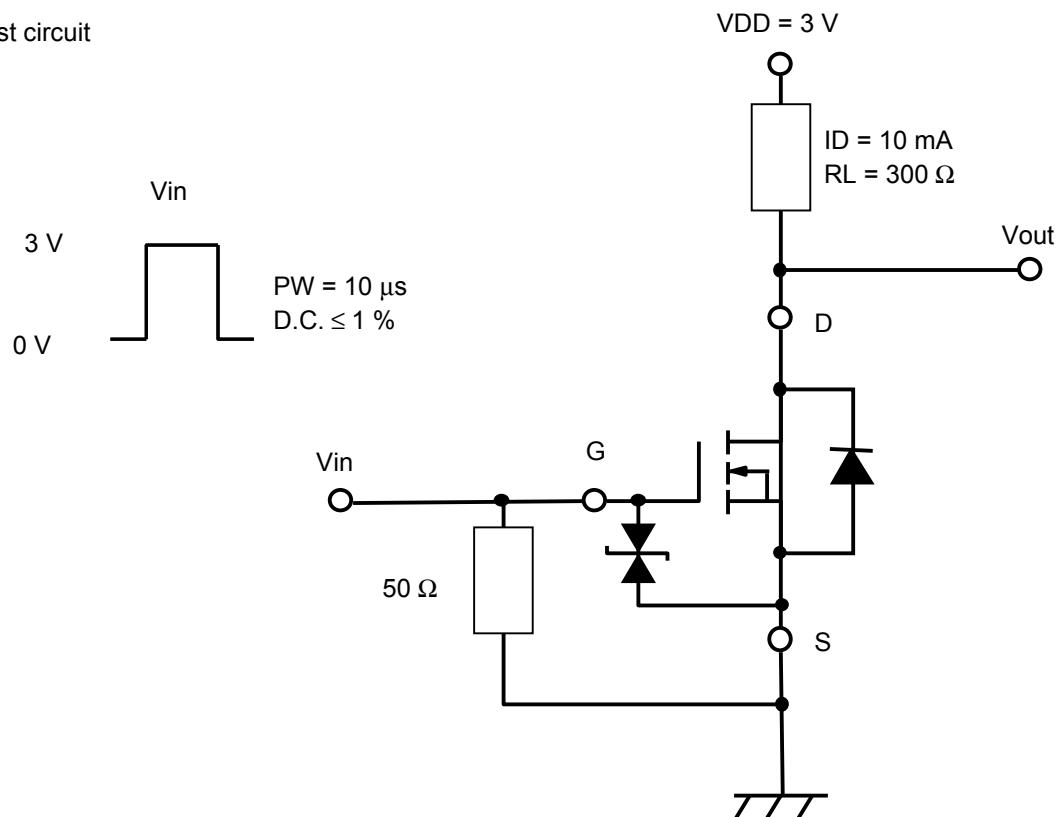
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source Breakdown Voltage	VDSS	ID = - 1 mA, VGS = 0 V	-20			V
Zero Gate Voltage Drain Current	IDSS	VDS = - 20 V, VGS = 0 V			-1.0	$\mu\text{A}$
Gate-source Leakage Current	IGSS	VGS = $\pm 8$ V, VDS = 0 V			$\pm 10$	$\mu\text{A}$
Gate-source Threshold Voltage	Vth	ID = - 1.0 mA, VDS = - 10 V	-0.4	-0.75	-1.1	V
Drain-source On-state Resistance <sup>*3</sup>	RDS(on)1	ID = - 0.5 A, VGS = - 1.8 V		155	245	$\text{m}\Omega$
	RDS(on)2	ID = - 1 A, VGS = - 2.5 V		115	185	
	RDS(on)3	ID = - 1 A, VGS = - 4.0 V		95	135	
Forward transfer admittance <sup>*3</sup>	Yfs	ID = - 1.0 A, VDS = - 10 V	3.0			S
Input Capacitance	Ciss	VDS = - 10 V, VGS = 0 V, f = 1 MHz		300		pF
Output Capacitance	Coss			30		
Reverse Transfer Capacitance	Crss			35		
Turn-on Delay Time <sup>*4</sup>	ton	VDD = - 10 V, VGS = 0 to -4.0 V ID = - 1.0 A		14		ns
Turn-off Delay Time <sup>*4</sup>	toff	VDD = - 10 V, VGS = - 4.0 to 0 V ID = - 1.0 A		112		ns

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

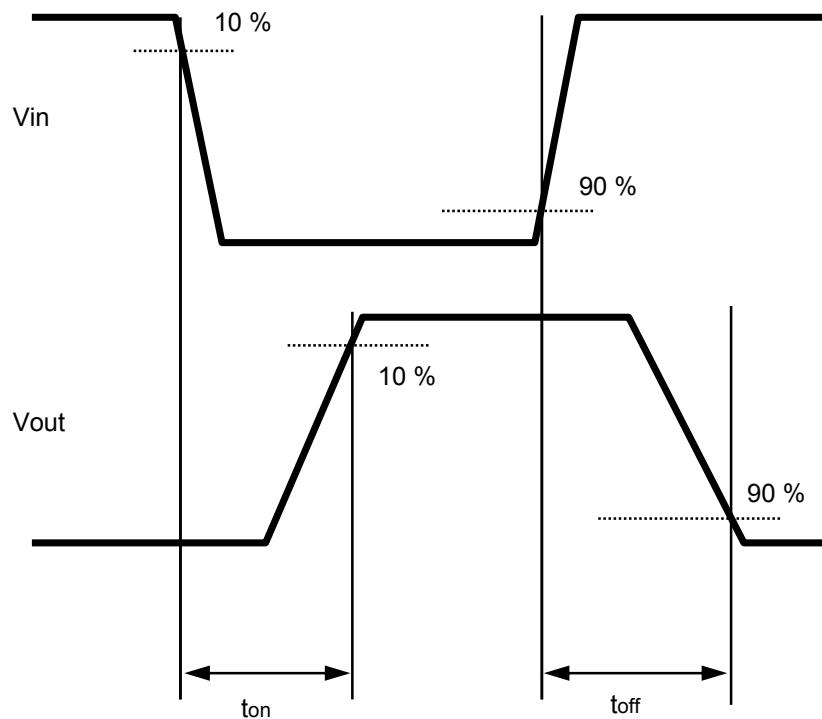
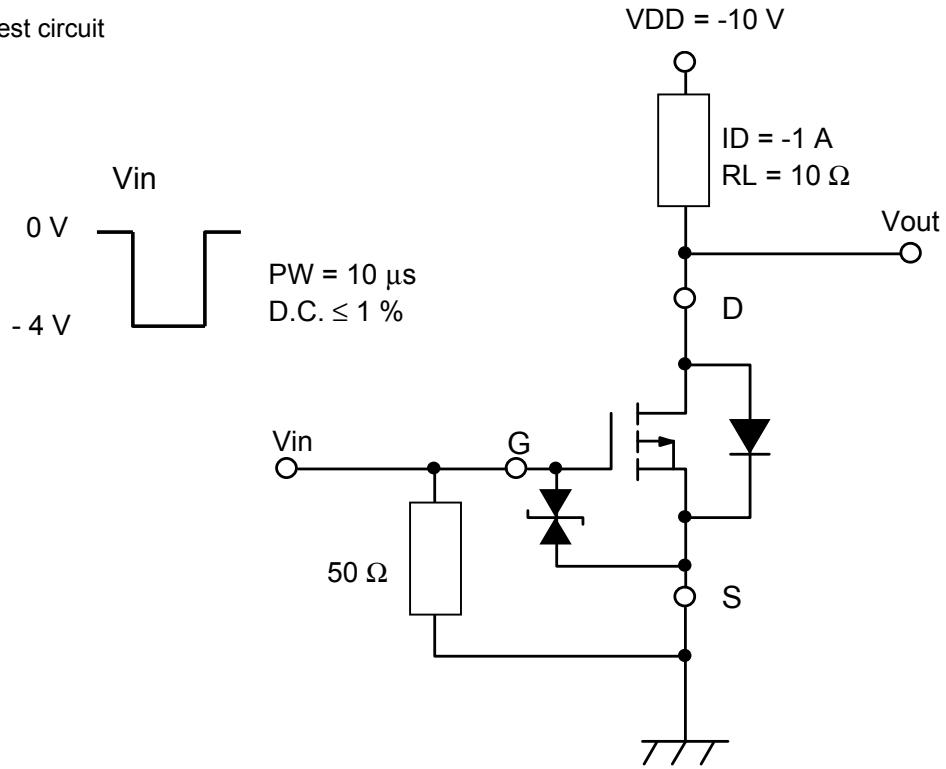
\*3 Pulse measurement

\*4 See Test circuit.

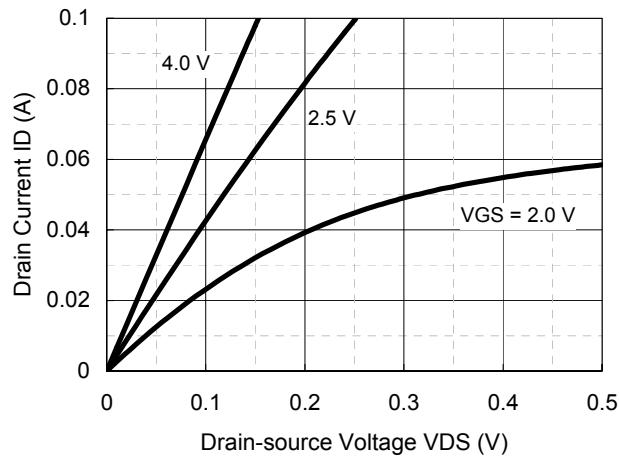
\*2 Test circuit



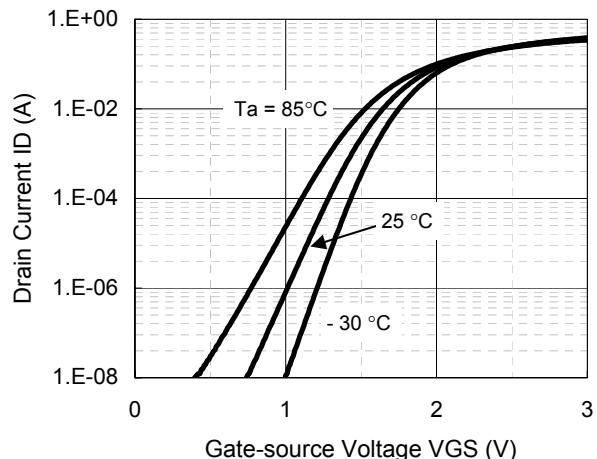
\*4 Test circuit



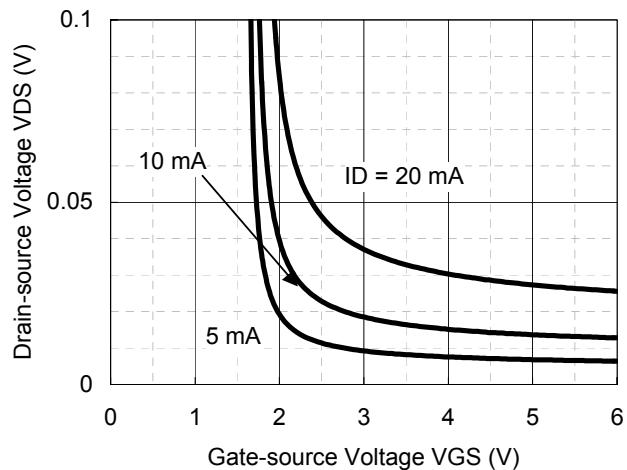
FET1(Nch.)



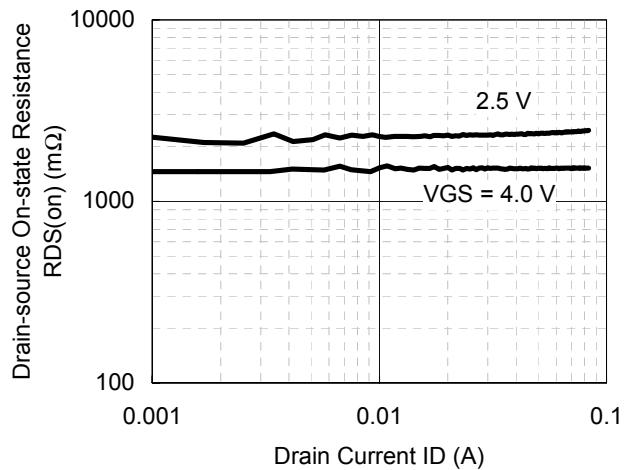
ID - VDS



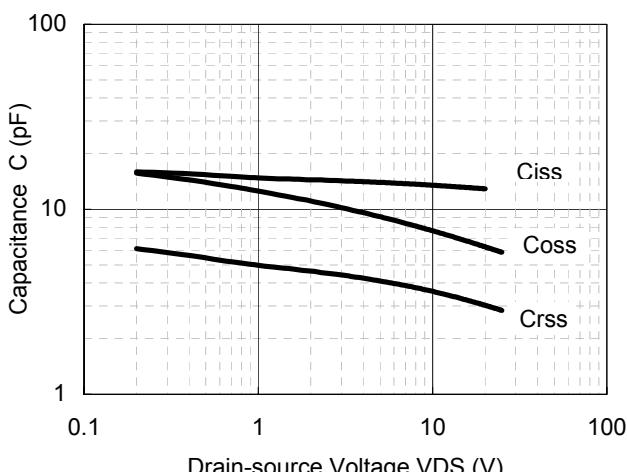
ID - VGS



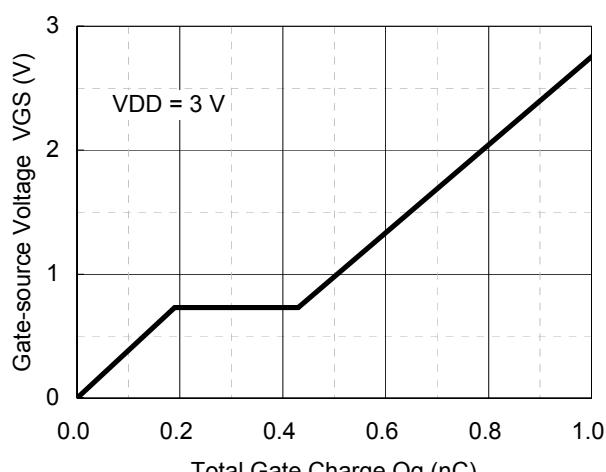
VDS - VGS



RDS(on) - ID

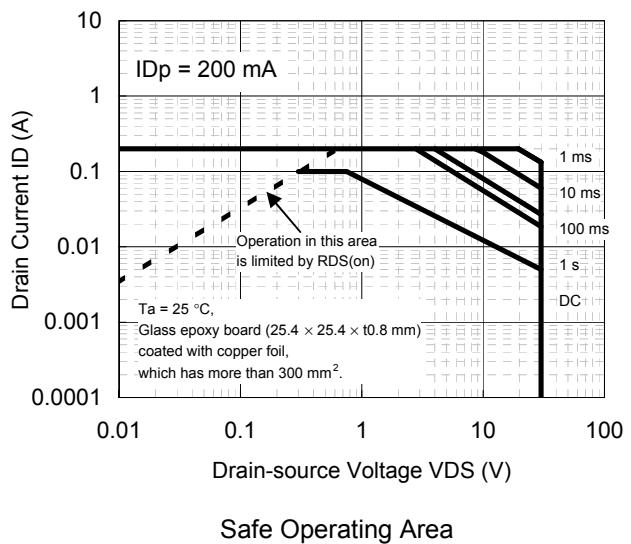
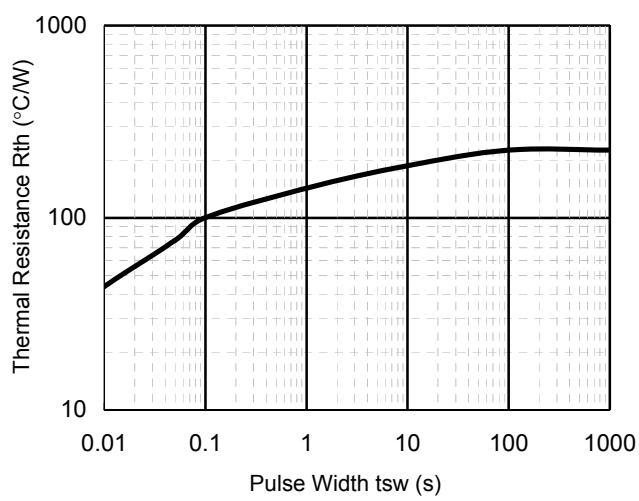
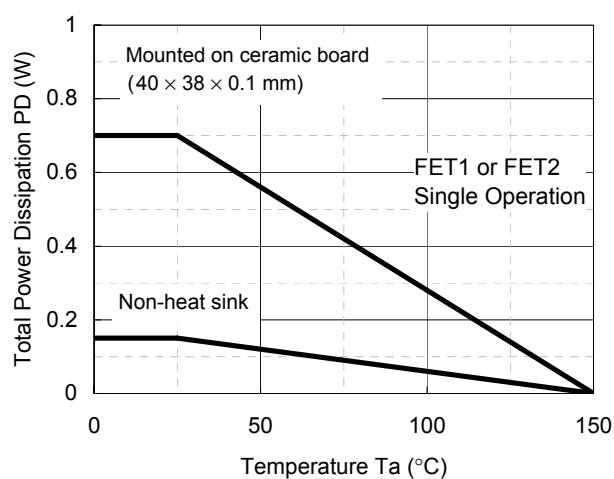
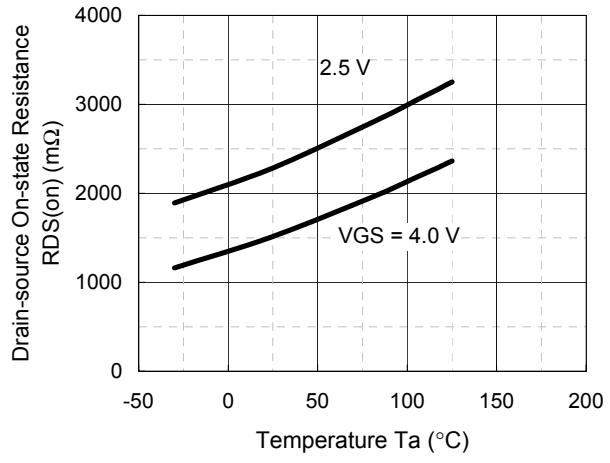
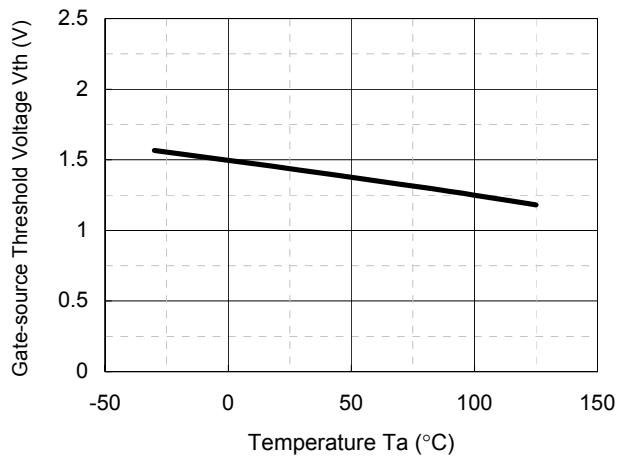


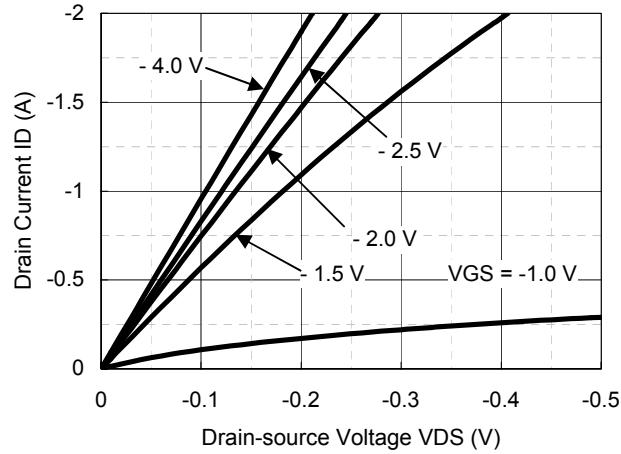
Capacitance - VDS



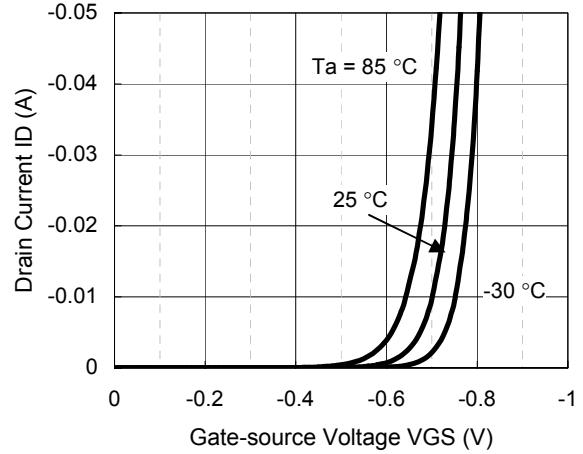
Dynamic Input/Output Characteristics

FET1(Nch.)

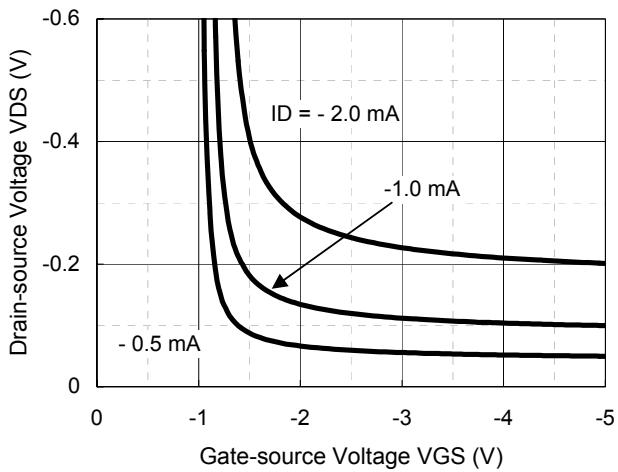




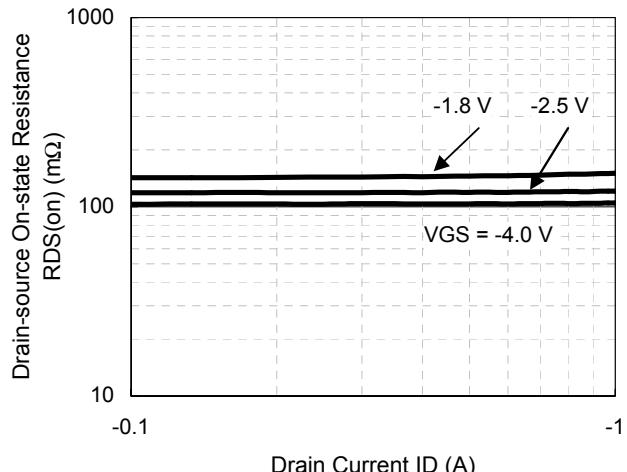
ID - VDS



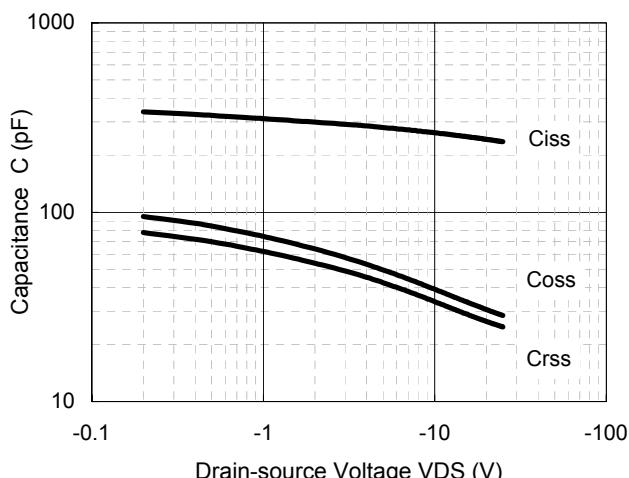
ID - VGS



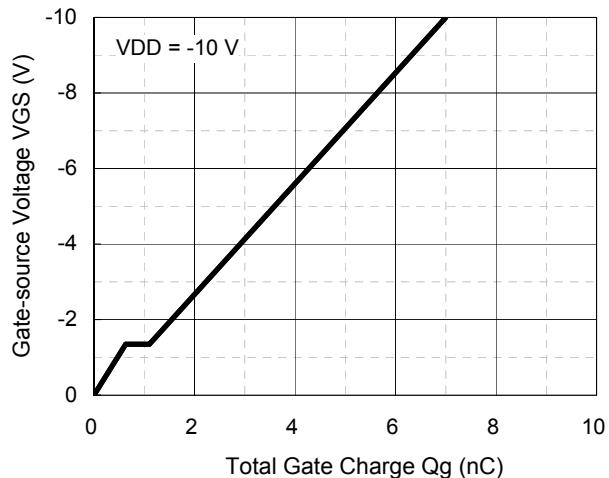
VDS - VGS



RDS(on) - ID

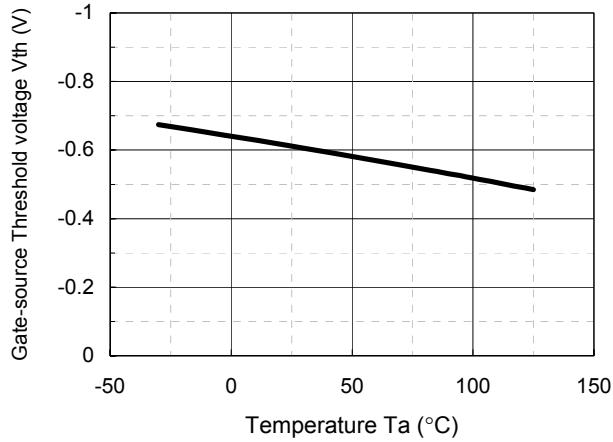


Capacitance - VDS

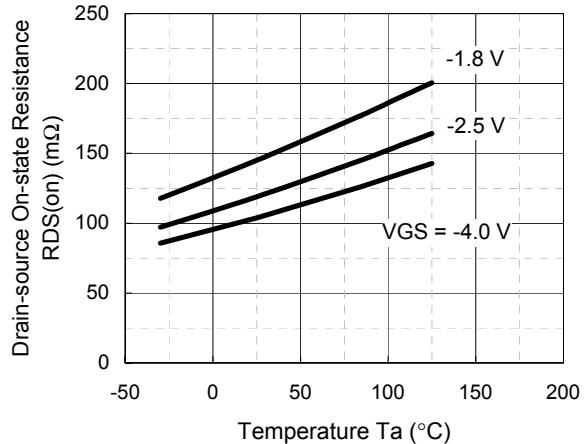


Dynamic Input/Output Characteristics

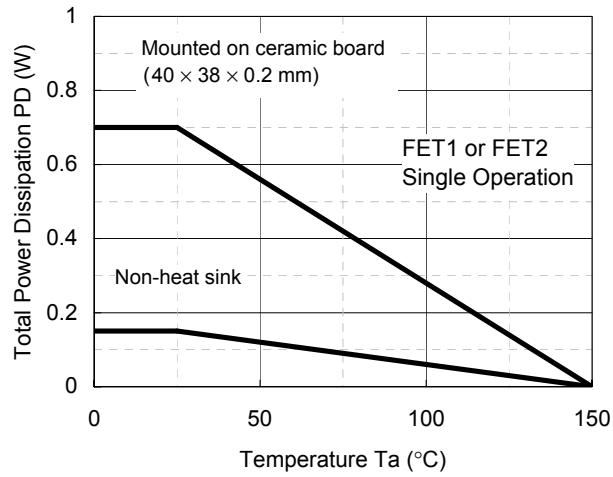
FET2(Pch.)



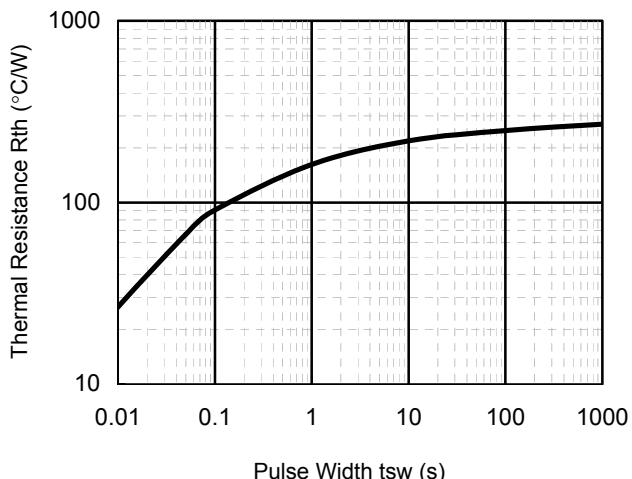
$V_{th} - T_a$



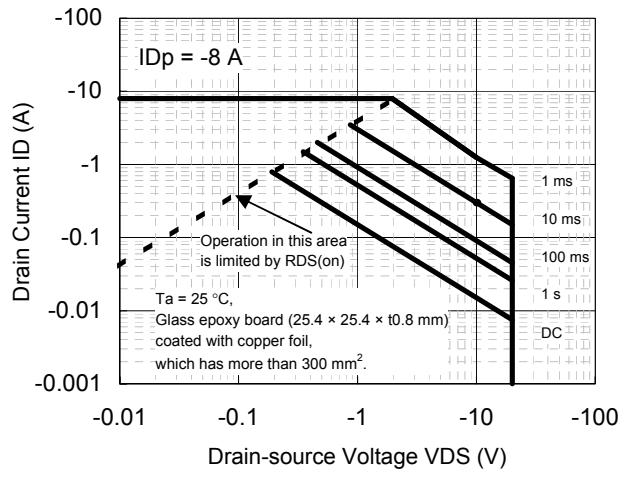
$R_{DS(on)} - T_a$



$PD - T_a$



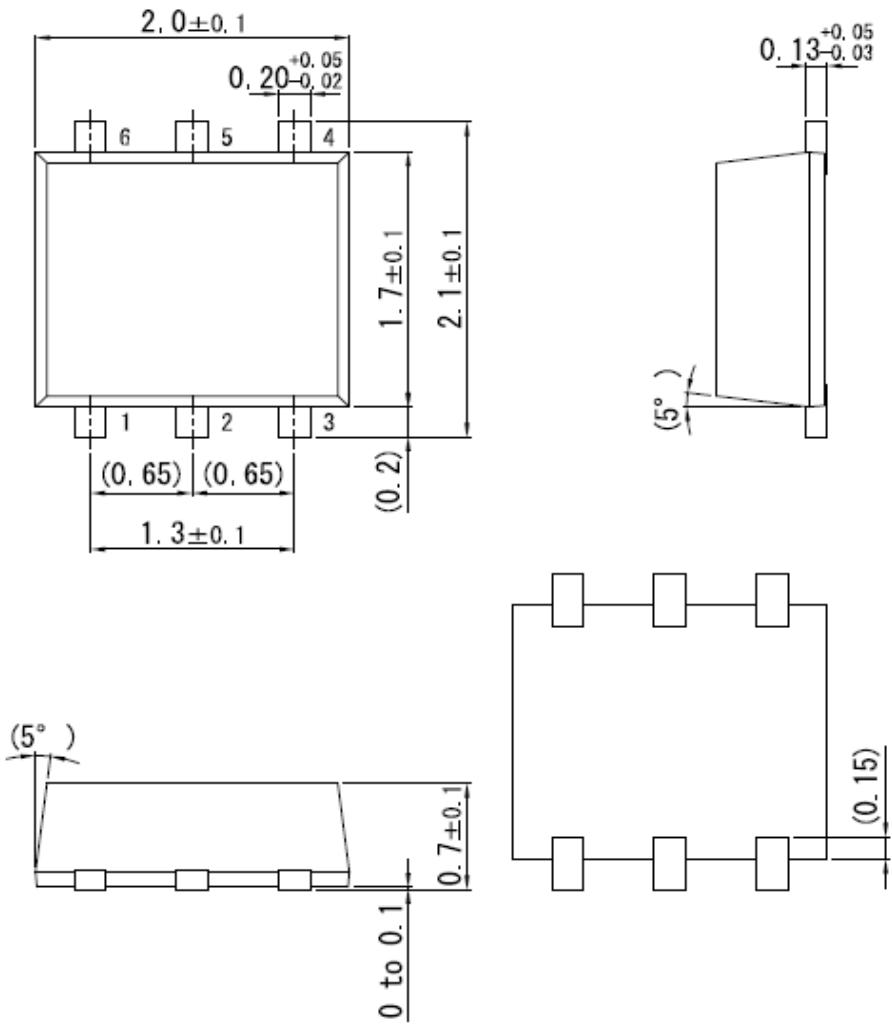
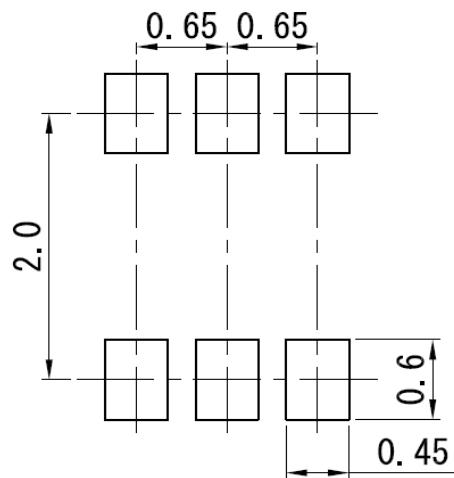
$R_{th} - t_{sw}$



Safe Operating Area

**WSMini6-F1-B**

Unit: mm

**■ Land Pattern (Reference) (Unit: mm)**

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