



FC8J33040L

Dual N-channel MOSFET

For switching
 For DC-DC Converter

■ Features

- Low drain-source On-state Resistance :
 RDS(on) typ = 48 mΩ (VGS = 4.5 V)
- High-speed switching : Qg = 2.8 nC
- Halogen-free / RoHS compliant
 (EU RoHS / UL-94 V-0 / MSL:Level 1 compliant)

■ Marking Symbol: 7A

■ Basic Part Number : Dual Nch MOS 33V (Individual)

■ Packaging

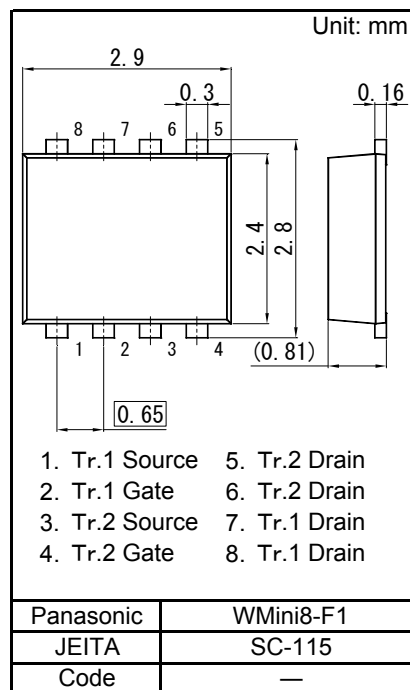
Embossed type (Thermo-compression sealing) : 3 000 pcs / reel (standard)

■ Absolute Maximum Ratings Ta = 25 °C Tr.1, Tr.2

Parameter	Symbol	Rating	Unit
Drain-source Voltage	VDS	33	V
Gate-source Voltage	VGS	±20	V
Drain Current (Steady State) ^{*1}	ID	5	A
Drain Current (t = 10 s) ^{*1}		5.5	
Drain Current (Pulsed) ^{*1,*2}		20	
Source Current (Pulsed) (Body Diode) ^{*1,*2}		ISp (BD)	
Total Power Dissipation (Steady State) ^{*1}	PD	1	W
Total Power Dissipation (t = 10 s) ^{*1}		1.3	
Channel Temperature	Tch	150	°C
Operating Ambient Temperature	Topr	-40 to + 85	°C
Storage Temperature Range	Tstg	-55 to +150	°C

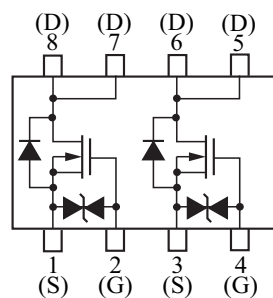
Note) *1 Device mounted on a glass-epoxy board (See Figure 1)

*2 Pulse test: Ensure that the channel temperature does not exceed 150°C.



- | | |
|----------------|---------------|
| 1. Tr.1 Source | 5. Tr.2 Drain |
| 2. Tr.1 Gate | 6. Tr.2 Drain |
| 3. Tr.2 Source | 7. Tr.1 Drain |
| 4. Tr.2 Gate | 8. Tr.1 Drain |

Internal Connection



Pin Name

- | | |
|----------------|---------------|
| 1. Tr.1 Source | 5. Tr.2 Drain |
| 2. Tr.1 Gate | 6. Tr.2 Drain |
| 3. Tr.2 Source | 7. Tr.1 Drain |
| 4. Tr.2 Gate | 8. Tr.1 Drain |

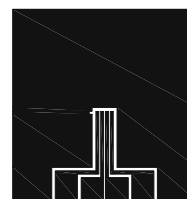


Figure1 FR4 Glass-Epoxy Board
 25.4 mm × 25.4 mm × 0.8 mm

■ Electrical Characteristics Ta = 25°C ± 3°C Tr.1, Tr.2

Static Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source Breakdown Voltage	VDSS	ID = 1 mA, VGS = 0 V	33			V
Zero Gate Voltage Drain Current	IDSS	VDS = 33 V, VGS = 0 V			1	μA
Gate-source Leakage Current	IGSS	VGS = ±16 V, VDS = 0 V			±10	μA
Gate-source Threshold Voltage	Vth	ID = 0.26 mA, VDS = 10 V	1		2.5	V
Drain-source On-state Resistance *1	RDS(on)1	ID = 2.5 A, VGS = 10 V		32	38	mΩ
	RDS(on)2	ID = 2.5 A, VGS = 4.5 V		48	68	

Dynamic Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input Capacitance	Ciss	VDS = 10 V, VGS = 0 V f = 1 MHz		220		pF
Output Capacitance	Coss			40		
Reverse Transfer Capacitance	Crss			35		
Turn-on Delay Time *2	td(on)	VDD = 15 V, VGS = 0 to 10 V		7		ns
Rise Time *2	tr	ID = 2.5 A		3		
Turn-off Delay Time *2	td(off)	VDD = 15 V, VGS = 10 to 0 V		15		
Fall Time *2	tf	ID = 2.5 A		9		
Total Gate Charge	Qg	VDD = 15 V, VGS = 0 to 4.5 V, ID = 5 A		2.8		nC
Gate-source Charge	Qgs			1.1		
Gate-drain Charge	Qgd			1.2		

Body Diode Characteristic

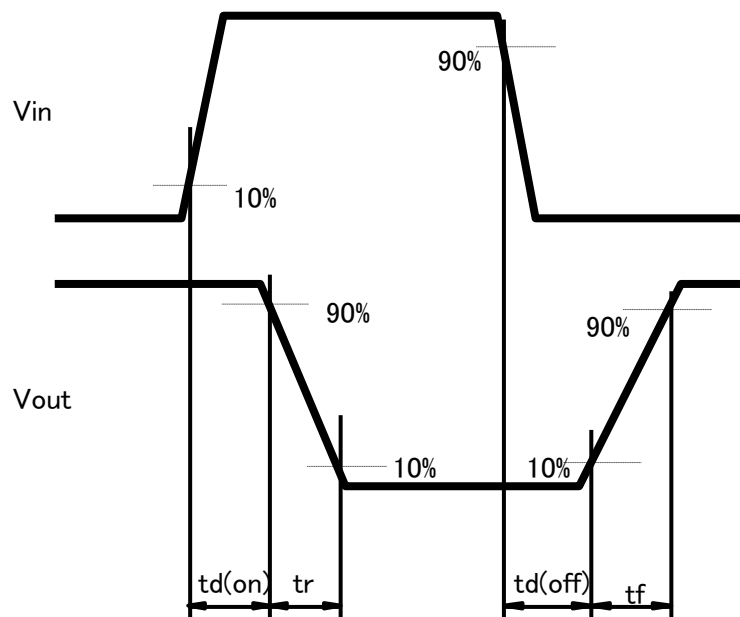
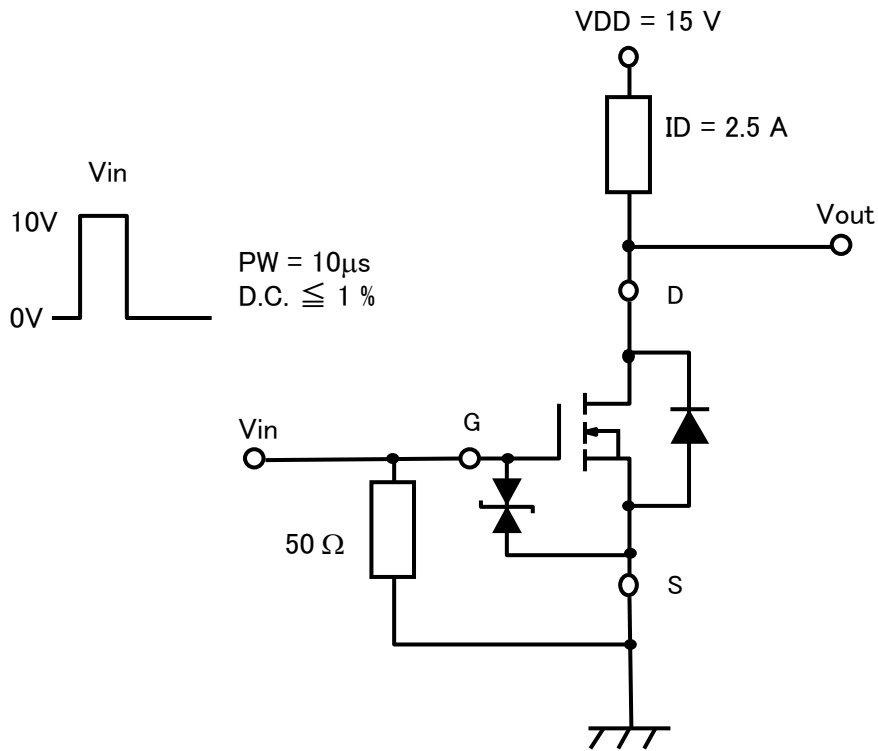
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage *1	VSD	IS = 2.5 A, VGS = 0 V		0.8	1.2	V

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 Measuring methods for transistors.

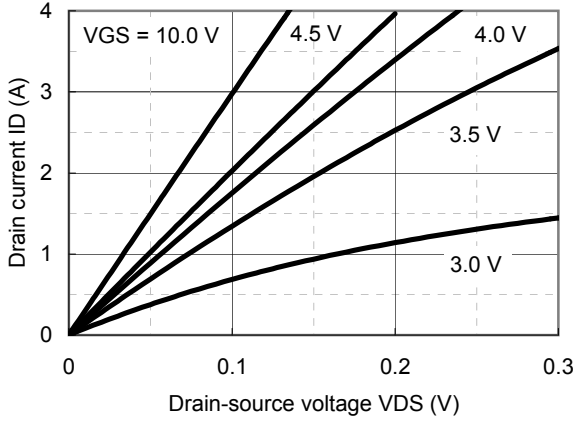
2. *1 Pulse test: Ensure that the channel temperature does not exceed 150°C.

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

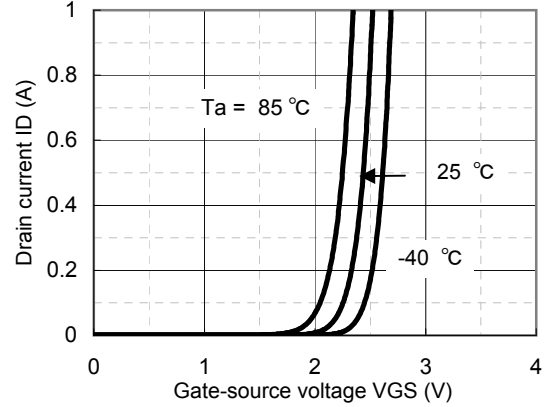
*2 Measurement circuit for Turn-on Delay Time/Rise Time/Turn-off Delay Time/Fall Time



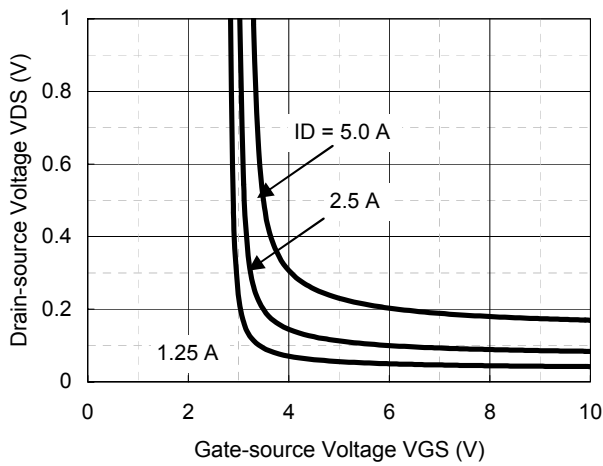
ID - VDS



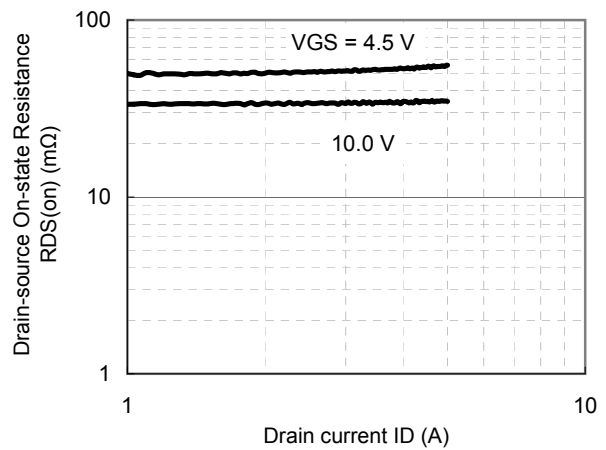
ID - VGS



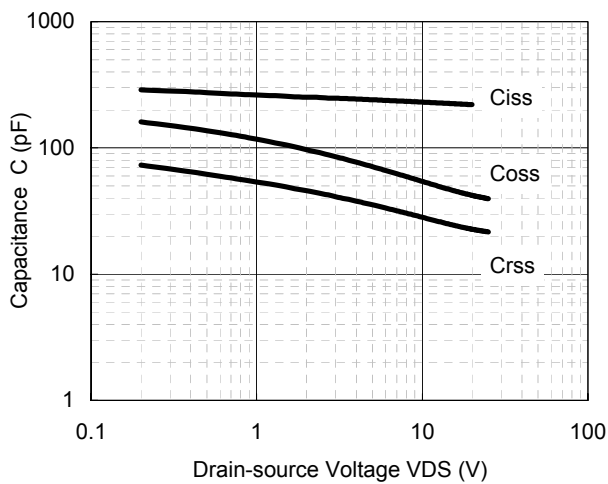
VDS - VGS



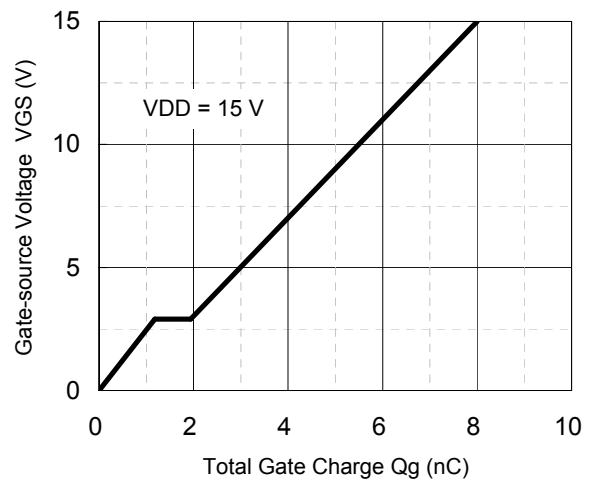
RDS(on) - ID



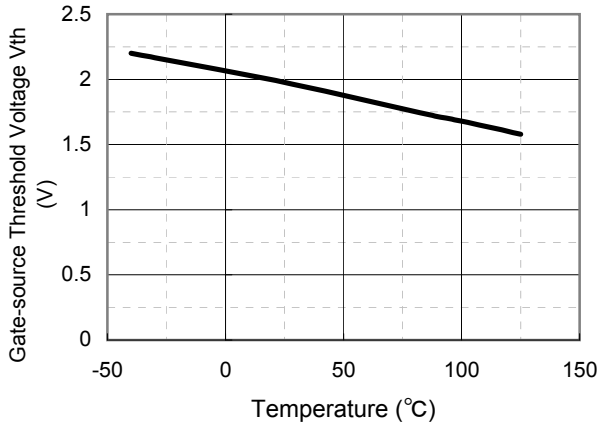
Capacitance - VDS



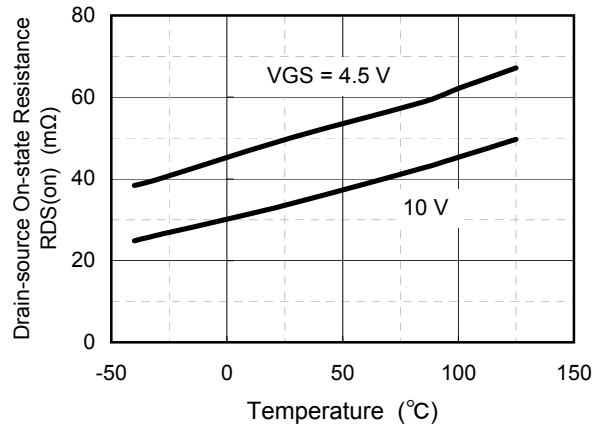
Dynamic Input/Output Characteristics



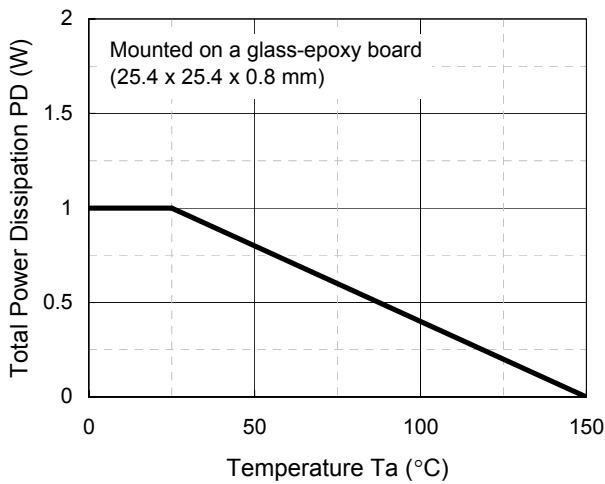
Vth - Ta



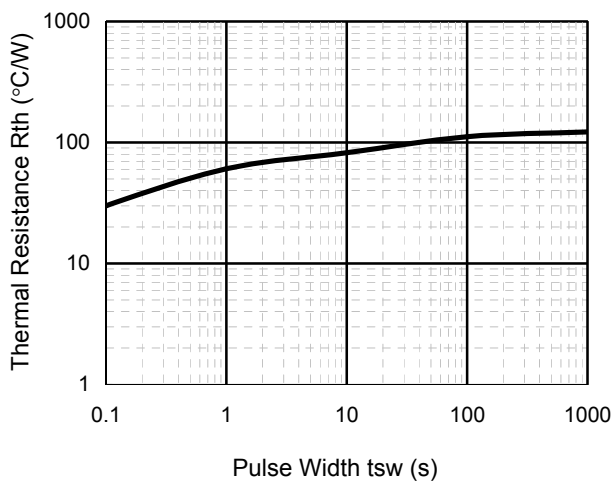
RDS(on) - Ta



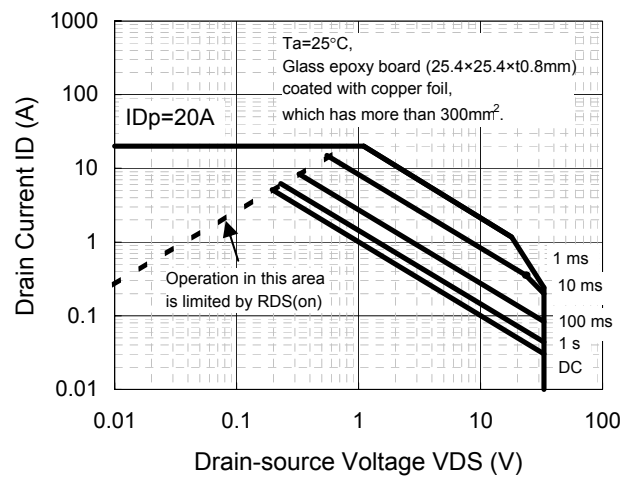
PD - Ta



Rth - tsw

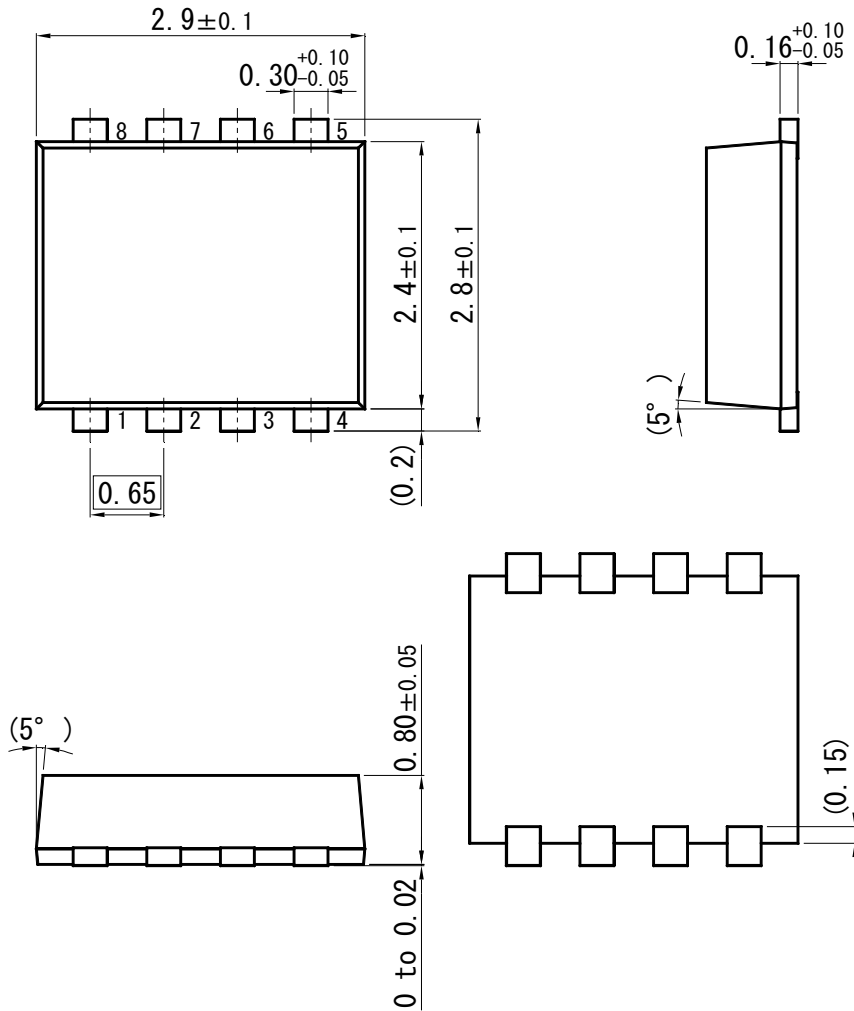


Safe Operating Area

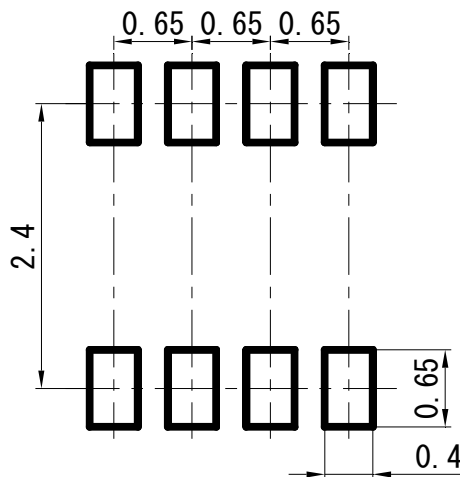


WMini8-F1

Unit : mm



■ Land Pattern (Reference) (Unit : mm)



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