

MTMC8E28

Dual N-channel MOS FET

For lithium-ion secondary battery protection circuit

Overview

The MTMC8E28 features the industry's lowest on-resistance, which has been realized by leading-edge fine processing, and the adoption of ultra-miniature package, which is most suitable for battery packs for mobile devices.

Features

- Low on-resistance: $R_{on} = 15 \text{ m}\Omega$ (typ.) ($V_{GS} = 4.5 \text{ V}$)
- Mini type package and surface mounting type
2.9 mm × 2.8 mm (height 0.8 mm)
- Drain common 2 elements
- Halogen free

Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain-source surrender voltage	V_{DSS}	20	V
Gate-source surrender voltage	V_{GSS}	± 10	V
Drain current	I_D	7.0	A
Peak drain current	I_{DP}	42	A
Power dissipation *	P_D	1.0	W
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Note) *: Glass epoxy board: 25.4 mm × 25.4 mm × 0.8 mm
Copper foil of the drain portion should have a area of 300 mm² or more
 P_D absolute maximum rating without a heat sink: 400 mW

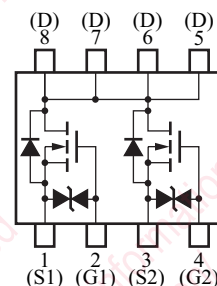
Package

- Code
WMini8-F1
- Pin Name

1: Source 1	5: Drain
2: Gate 1	6: Drain
3: Source 2	7: Drain
4: Gate 2	8: Drain

Marking Symbol: 4A

Internal Connection

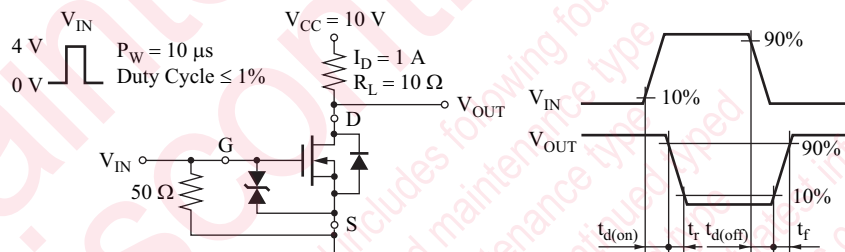


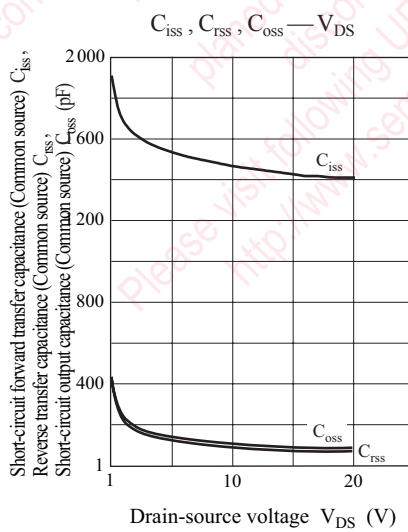
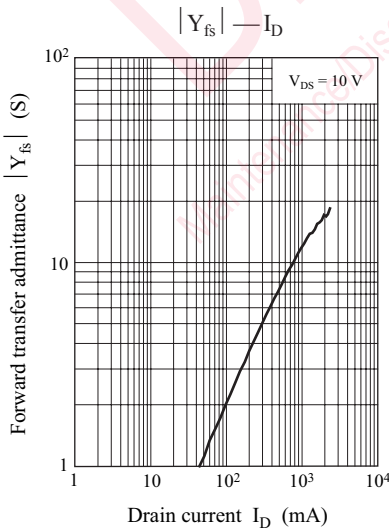
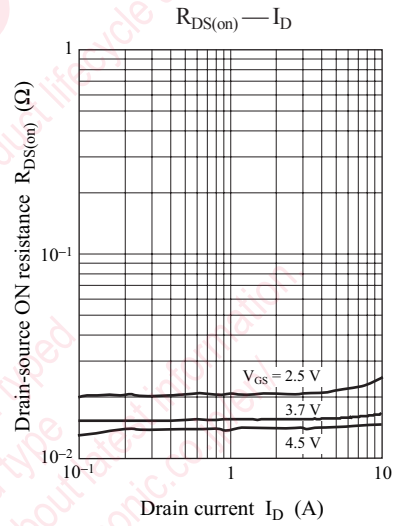
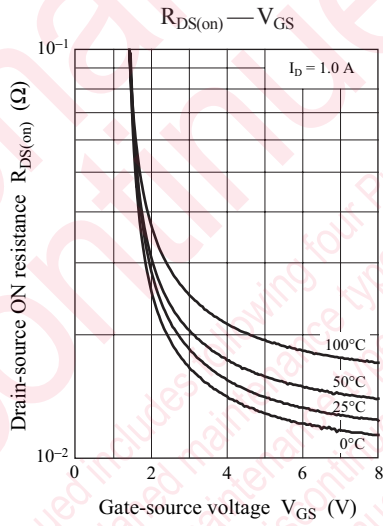
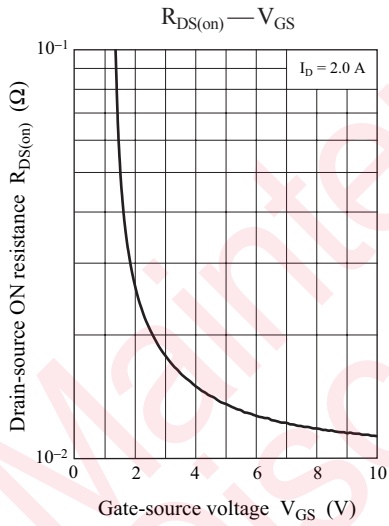
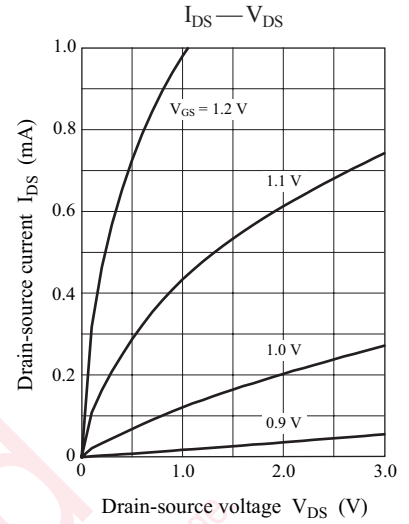
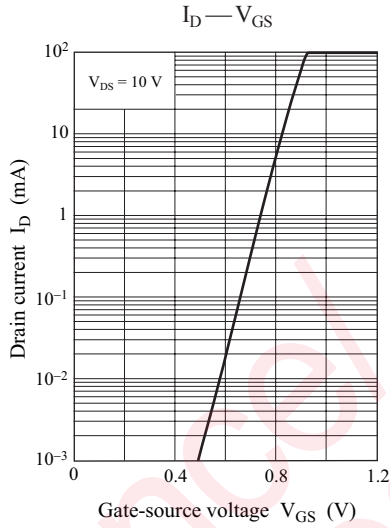
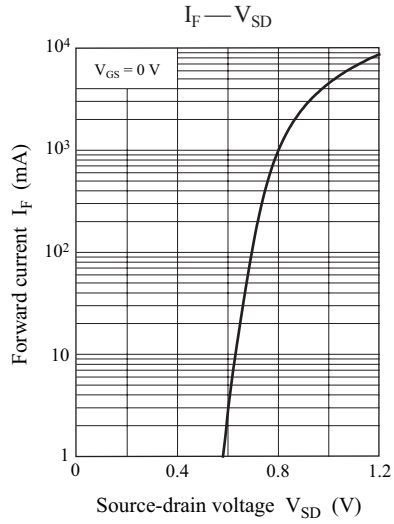
■ Electrical Characteristics $T_a = 25^{\circ}\text{C} \pm 3^{\circ}\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source surrender voltage	V_{DSS}	$I_D = 1 \text{ mA}, V_{GS} = 0$	20			V
Drain-source cutoff current	I_{DSS}	$V_{DS} = 20 \text{ V}, V_{GS} = 0$			1.0	μA
Gate-source cutoff current	I_{GSS}	$V_{GS} = \pm 8 \text{ V}, V_{DS} = 0$			± 10	μA
Gate threshold voltage	V_{TH}	$I_D = 1.0 \text{ mA}, V_{DS} = 10.0 \text{ V}$	0.4	0.85	1.3	V
Drain-source ON resistance 1	$R_{DS(on)1}$	$I_D = 2.0 \text{ A}, V_{GS} = 4.5 \text{ V}$		15	21	$\text{m}\Omega$
Drain-source ON resistance 2	$R_{DS(on)2}$	$I_D = 2.0 \text{ A}, V_{GS} = 3.7 \text{ V}$		18	25	$\text{m}\Omega$
Drain-source ON resistance 3	$R_{DS(on)3}$	$I_D = 1.0 \text{ A}, V_{GS} = 2.5 \text{ V}$		22	33	$\text{m}\Omega$
Forward transfer admittance	$ Y_{fs} $	$I_D = 1.0 \text{ A}, V_{DS} = 10 \text{ V}$	3.0			S
Short-circuit input capacitance (Common source)	C_{iss}	$V_{DS} = 10 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$		1500		pF
Short-circuit output capacitance (Common source)	C_{oss}			110		pF
Reverse transfer capacitance (Common source)	C_{rss}			100		pF
Turn-on delay time *	$t_{d(on)}$	$V_{DD} = 10 \text{ V}, V_{GS} = 0 \text{ V to } 4 \text{ V}, I_D = 1.0 \text{ A}$		14		ns
Turn-off delay time *	$t_{d(off)}$	$V_{DD} = 10 \text{ V}, V_{GS} = 4 \text{ V to } 0 \text{ V}, I_D = 1.0 \text{ A}$		18		ns
Rise time *	t_r	$V_{DD} = 10 \text{ V}, V_{GS} = 0 \text{ V to } 4 \text{ V}, I_D = 1.0 \text{ A}$		130		ns
Fall time *	t_f	$V_{DD} = 10 \text{ V}, V_{GS} = 4 \text{ V to } 0 \text{ V}, I_D = 1.0 \text{ A}$		80		ns

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

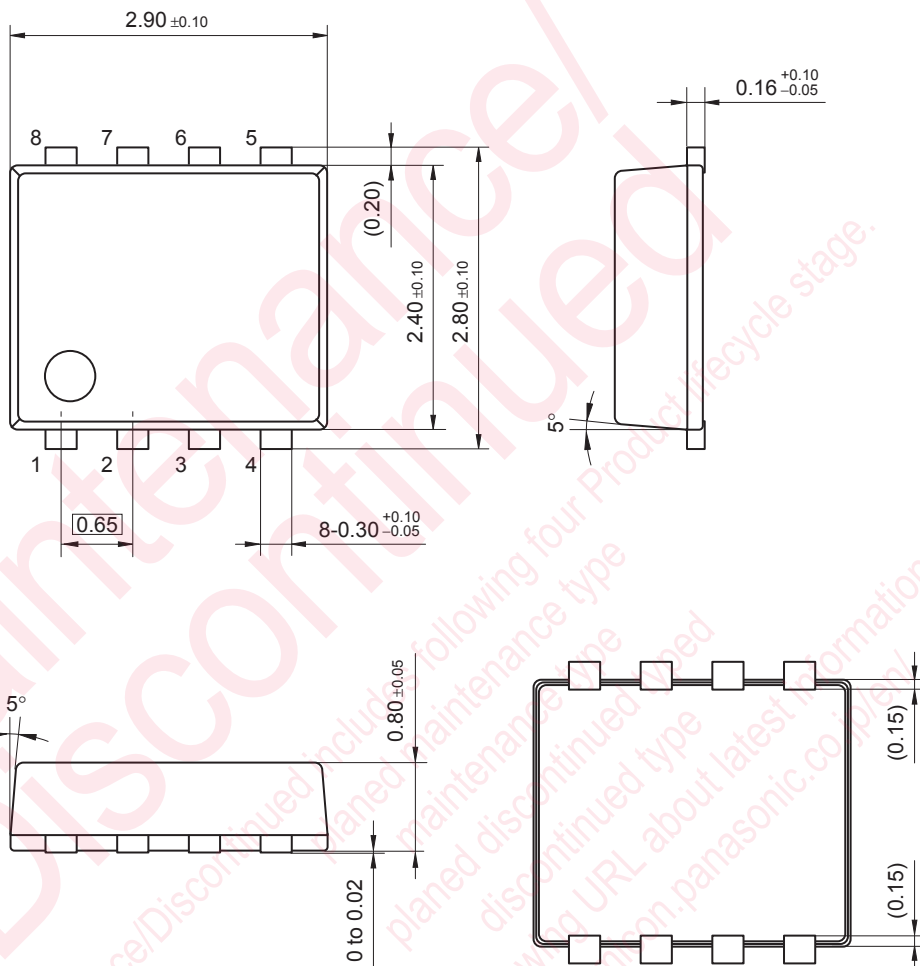
2. *: Test circuit





WMini8-F1

Unit: mm



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