

MTM86127

Silicon P-channel MOS FET

For DC-DC converter circuits

■ Overview

MTM86127 is the low on resistance P-channel MOS FET designed for DC-DC converter circuits.

■ Features

- Low drain-source ON resistance: $R_{DS(on)}$ typ. = 140 m Ω ($V_{GS} = -1.8$ V)
- Small package: WSSMini6-F1
- Low drive voltage: 1.8 V drive
- Contributes to miniaturization of sets, reduction of component count.
- Eco-friendly Halogen-free package

■ Packaging

Embossed type (Thermo-compression sealing): 10000 pcs / reel (standard)

■ 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	-2.0	A
Peak drain current	I_{DP}	-8.0	A
Power dissipation *	P_D	540	mW
Channel temperature	T_{ch}	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Note) *: Measuring on ceramic substrate at 40 mm \times 38 mm \times 0.2 mm
 P_D absolute maximum rating without a heat sink: 150 mW

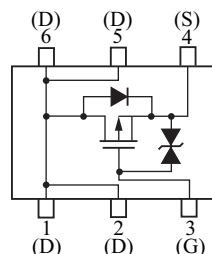
■ Package

- Code
WSSMini6-F1
- Pin Name

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

■ Marking Symbol: MK

■ Internal Connection



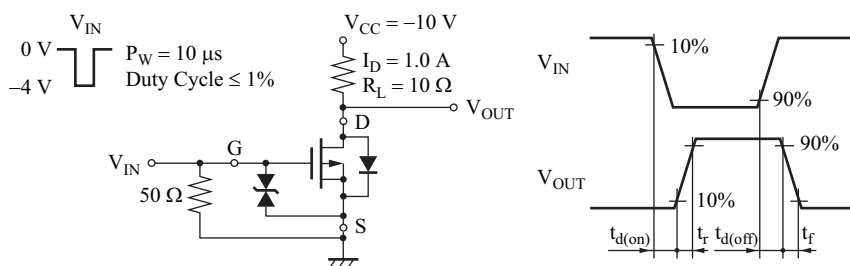
■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

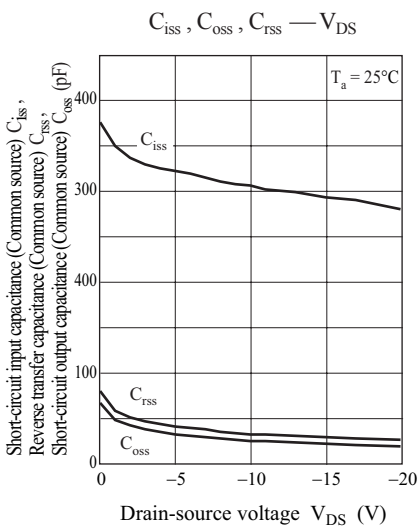
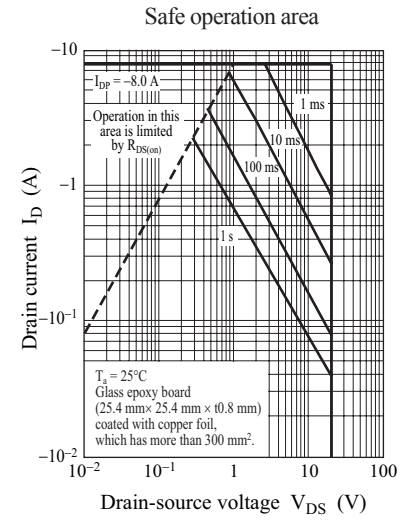
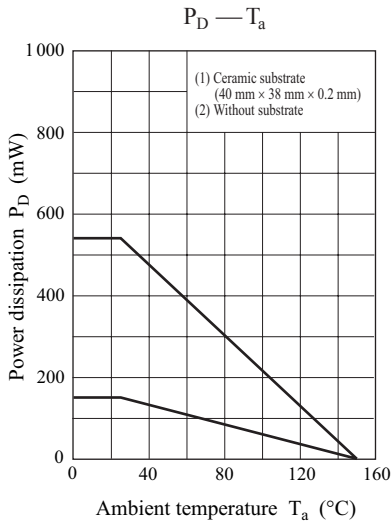
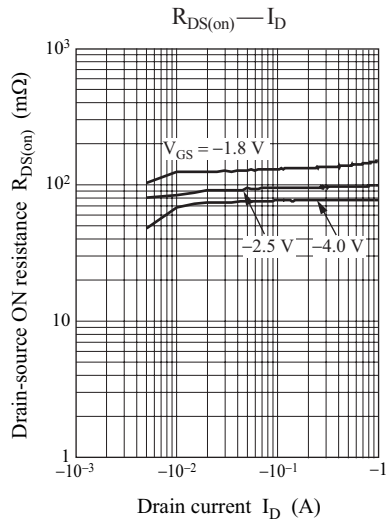
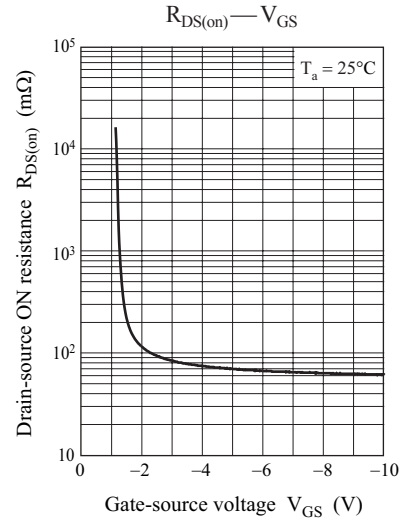
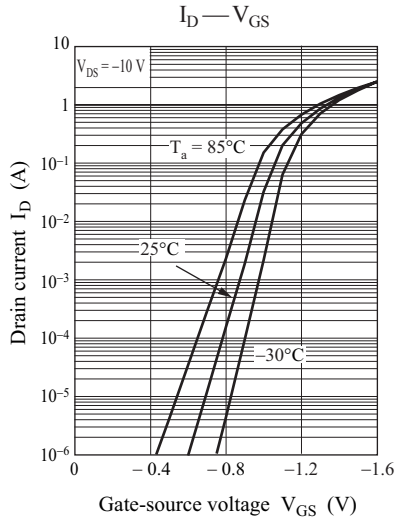
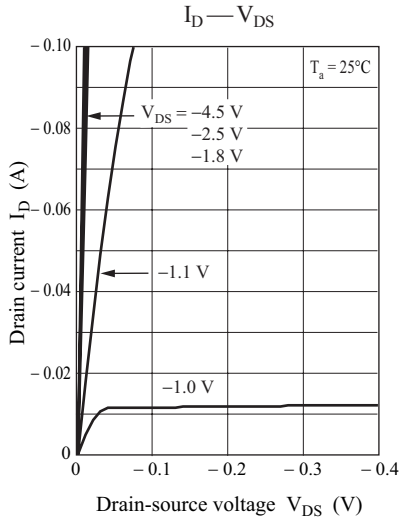
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source surrender voltage	V_{DSS}	$I_D = -1.0 \text{ mA}, V_{GS} = 0$	-20			V
Drain-source cutoff current	I_{DSS}	$V_{DS} = -20 \text{ V}, V_{GS} = 0$			-1.0	μA
Gate-source cutoff current	I_{GSS}	$V_{GS} = \pm 8 \text{ V}, V_{DS} = 0$			± 10	μA
Gate threshold voltage	V_{TH}	$I_D = -1.0 \text{ mA}, V_{DS} = -10 \text{ V}$	-0.40	-0.75	-1.10	V
Drain-source ON resistance 1 *1	$R_{DS(on)1}$	$I_D = -1.0 \text{ A}, V_{GS} = -4.0 \text{ V}$		80	120	$\text{m}\Omega$
Drain-source ON resistance 2 *1	$R_{DS(on)2}$	$I_D = -1.0 \text{ A}, V_{GS} = -2.5 \text{ V}$		100	170	$\text{m}\Omega$
Drain-source ON resistance 3 *1	$R_{DS(on)3}$	$I_D = -0.5 \text{ A}, V_{GS} = -1.8 \text{ V}$		140	230	$\text{m}\Omega$
Forward transfer admittance *1	$ Y_{fs} $	$I_D = -1.0 \text{ A}, V_{DS} = -10 \text{ V}, f = 1 \text{ kHz}$	3.0			S
Short-circuit input capacitance (Common source)	C_{iss}	$V_{DS} = -10 \text{ V}, V_{GS} = 0, f = 1 \text{ MHz}$		300		pF
Short-circuit output capacitance (Common source)	C_{oss}			30		pF
Reverse transfer capacitance (Common source)	C_{rss}			35		pF
Turn-on delay time *2	$t_{d(on)}$	$V_{DD} = -10 \text{ V}, V_{GS} = 0 \text{ V to } -4 \text{ V}, I_D = -1.0 \text{ A}$		6		ns
Rise time *2	t_r			8		ns
Turn-off delay time *2	$t_{d(off)}$	$V_{DD} = -10 \text{ V}, V_{GS} = -4 \text{ V to } 0 \text{ V}, I_D = -1.0 \text{ A}$		57		ns
Fall time *2	t_f			55		ns

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

2. *1: Pulse measurement

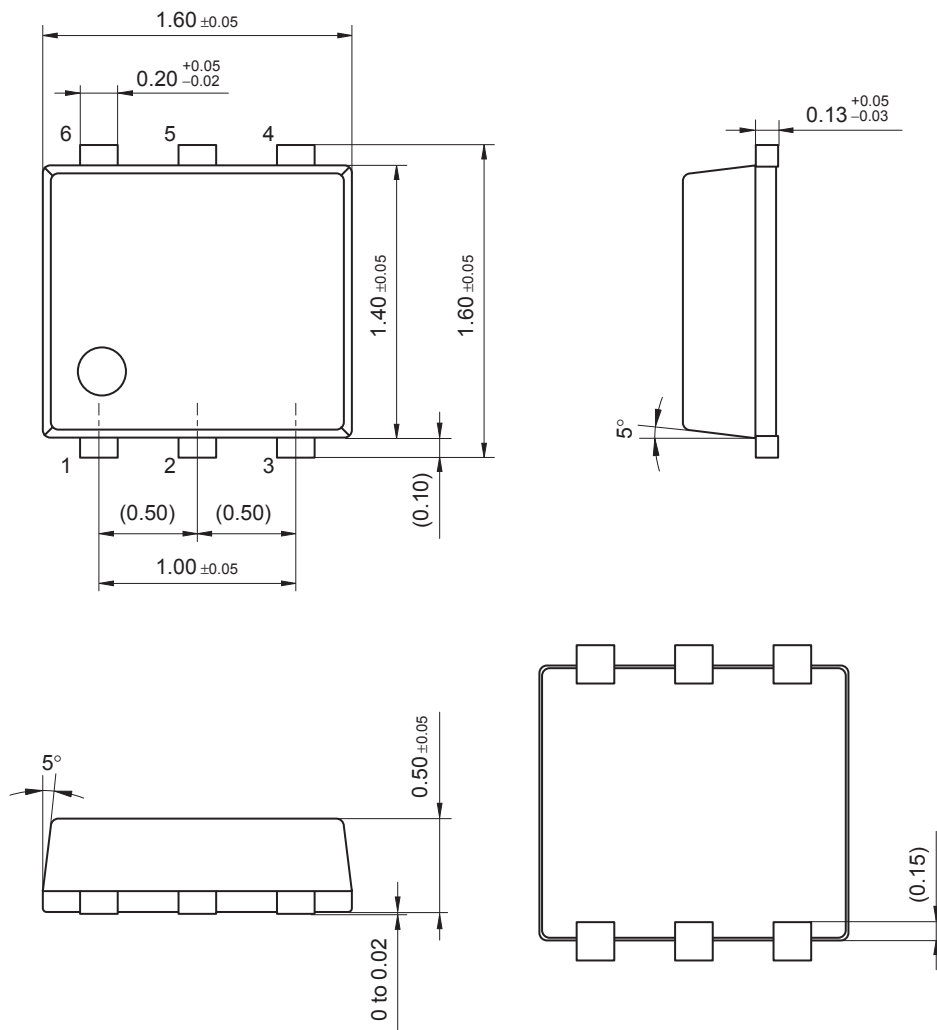
*2: Test circuit





WSSMini6-F1

Unit: mm



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