MTM86124

Silicon P-channel MOS FET

For DC-DC converter circuits
For switching circuits

■ Overview

MTM86124 is the P-channel MOS FET that is highly suitable for DC-DC converter and other switching circuits.

■ Features

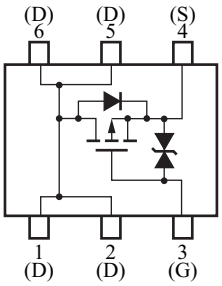
- Low ON resistance: R_{on} = 100 mΩ (V_{GS} = 4.0 V)
- Low short-circuit input capacitance (common source): C_{iss} = 400 pF
- Small package: WSSMini6-F1 (1.6 mm × 1.6 mm × 0.5 mm)
- Low drive voltage: 2.5 V drive

■ Package

- Code
  WSSMini6-F1
- Pin Name
  1: Drain 4: Source
  2: Drain 5: Drain
  3: Gate 6: Drain

■ Marking Symbo: DM

■ Internal Connection



■ Absolute Maximum Ratings T_a = 25°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 *1	I_{DP}	–8	A
Power dissipation *2	P_D	540	mW
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	–55 to +150	°C

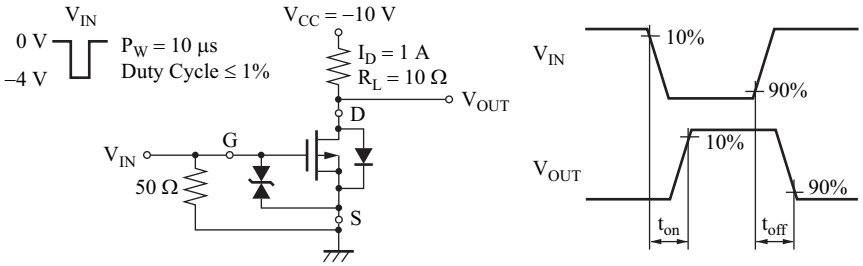
Note) ∗1:Pulse width ≤ 10 μs, Duty cycle ≤ 1%
∗2:Measuring on ceramic substrate at 40 mm × 38 mm × 0.2 mm
P_D absolute maximum rating without a heat shink: 150 mW

■ Electrical Characteristics T_a = 25°C±3°C

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-source surrender voltage	V_{DSS}	I_D = –1 mA, V_{GS} = 0	–20			V
Drain-source cutoff current	I_{DSS}	V_{DS} = –20 V, V_{GS} = 0			–1.0	μA
Gate-source cutoff current	I_{GSS}	V_{GS} = ±8 V, V_{DS} = 0			±10	μA
Gate threshold voltage	V_{TH}	I_D = –1.0 mA, V_{DS} = –10 V	– 0.4	– 0.85	–1.3	V
Drain-source ON resistance 1 *1	$R_{DS(on)}1$	I_D = –1 A, V_{GS} = –4.0 V		100	130	mΩ
Drain-source ON resistance 2 *1	$R_{DS(on)}2$	I_D = – 0.6 A, V_{GS} = –2.5 V		130	200	mΩ
Forward transfer admittance*1	$\|Y_{fs}\|$	I_D = –1.0 A, V_{DS} = –10 V, f = 1 kHz	3.0			S
Short-circuit input capacitance (Common source)	C_{iss}	V_{DS} = –10 V, V_{GS} = 0, f = 1 MHz		400		pF
Short-circuit output capacitance (Common source)	C_{oss}			40		pF
Reverse transfer capacitance (Common source)	C_{rss}			35		pF
Turn-on time *2	t_{on}	V_{DD} = –10 V, V_{GS} = 0 V to –4 V, I_D = –1 A		15		ns
Turn-off time *2	t_{off}	V_{DD} = –10 V, V_{GS} = –4 V to 0 V, I_D = –1 A		100		ns

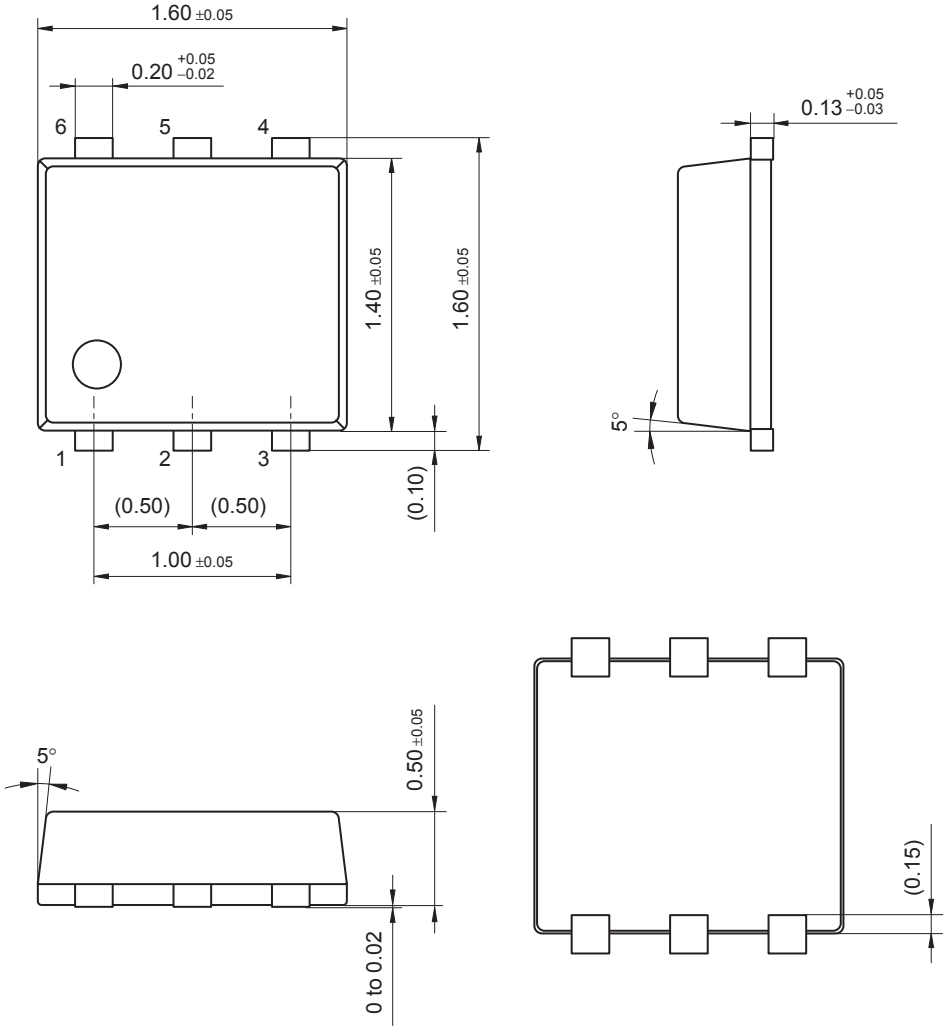
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.
2. ∗1: Pulse measurement
∗2: Test circuit

Test circuit



WSSMini6-F1

Unit: mm



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