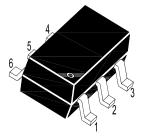
P-Channel Enhancement Mode MOSFET

Features

• Surface-mounted package



Drain
Drain
Gate
Source
Drain
Drain
Drain

Applications

- · Battery protection
- · Load switch
- Uninterruptible power supply

Absolute Maximum Ratings(at Ta = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	-V _{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	-I _D	1.6	Α
Pulsed Drain Current 1)	-I _{DM}	9	Α
Total Power Dissipation 2)	P _{tot}	1	W
Operating Junction and Storage Temperature Range	T _J , T _{stg}	- 55 to + 150	°C

Thermal Resistance Ratings

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient 2)	R _{0JA}	125	°C/W

¹⁾ Pulse Test: Pulse Width ≤ 100 μs, Duty Cycle ≤ 2%,Repetitive rating, pulse width limited by junction temperature T_{J(MAX)}=150°C.



²⁾ Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate in still air.

MD10P380LS

Characteristics at Ta = 25°C unless otherwise specified

Parameter	Symbol	Min.	Тур.	Max.	Unit
STATIC PARAMETERS					
Drain-Source Breakdown Voltage at -I _D = 250 μA	-V _{(BR)DSS}	100	-	-	V
Zero Gate Voltage Drain Current at -V _{DS} = 80 V	-I _{DSS}	-	-	1	μΑ
Gate-Source Leakage at V _{GS} = ± 20 V	I _{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage at $V_{DS} = V_{GS}$, $-I_D = 250 \mu A$	-V _{GS(th)}	1.2	-	2.3	V
Drain-Source On-State Resistance at -V _{GS} = 10 V, -I _D = 1 A at -V _{GS} = 4.5 V, -I _D = 0.5 A	R _{DS(on)}	- -	- -	325 380	mΩ
DYNAMIC PARAMETERS					
Gate resistance at $V_{DS} = 0 \text{ V}$, $V_{GS} = 0 \text{ V}$, $f = 1 \text{ MHz}$	R_g	-	7.1	-	Ω
Forward Transconductance at $-V_{DS} = 5 V$, $-I_D = 1.6 A$	g fs	-	8	-	S
Input Capacitance at $V_{GS} = 0 \text{ V}$, $-V_{DS} = 50 \text{ V}$, $f = 1 \text{ MHz}$	Ciss	-	1046	-	pF
Output Capacitance at $V_{GS} = 0 \text{ V}$, $-V_{DS} = 50 \text{ V}$, $f = 1 \text{ MHz}$	Coss	-	29	-	pF
Reverse Transfer Capacitance at $V_{GS} = 0 \text{ V}$, $-V_{DS} = 50 \text{ V}$, $f = 1 \text{ MHz}$	Crss	-	25	-	pF
Total Gate Charge at -V _{GS} = 10 V, -V _{DS} = 50 V, -I _D = 1.6 A at -V _{GS} = 4.5 V, -V _{DS} = 50 V, -I _D = 1.6 A	Qg	- -	16 7	- -	nC
Gate to Source Charge at $-V_{GS} = 10 \text{ V}$, $-V_{DS} = 50 \text{ V}$, $-I_D = 1.6 \text{ A}$	Q _{gs}	-	4	-	nC
Gate to Drain Charge at $-V_{GS} = 10 \text{ V}$, $-V_{DS} = 50 \text{ V}$, $-I_D = 1.6 \text{ A}$	Q_{gd}	-	2	-	nC
Turn-On Delay Time at -V _{GS} = 10 V, -V _{DD} = 50 V, -I _D = 1.6 A, R_g = 3.3 Ω	t _{d(on)}	-	8	-	ns
Turn-On Rise Time at -V _{GS} = 10 V, -V _{DD} = 50 V, -I _D = 1.6 A, R _g = 3.3 Ω	t _r	-	4	-	ns
Turn-Off Delay Time at -V _{GS} = 10 V, -V _{DD} = 50 V, -I _D = 1.6 A, R _g = 3.3 Ω	$t_{d(off)}$	-	12	-	ns
Turn-Off Fall Time at -V _{GS} = 10 V, -V _{DD} = 50 V, -I _D = 1.6 A, R _g = 3.3 Ω	t _f	-	4	-	ns
Body-Diode PARAMETERS	<u> </u>				
Body Diode Voltage at -I _S = 1 A	-V _{SD}	-	-	1.2	V
Body-Diode Continuous Current	-Is	-	-	1.6	Α



Electrical Characteristics Curves

Fig. 1 Typical Output Characteristics

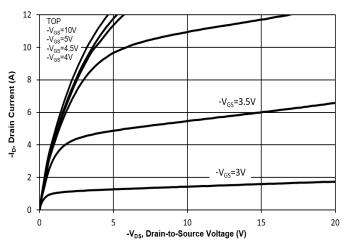


Fig. 2 Typical Transfer Characteristics

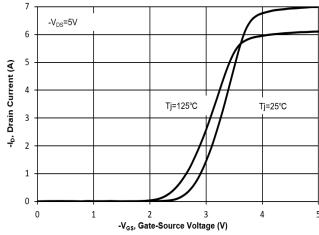


Fig. 3 On-Resistance vs. Drain Current

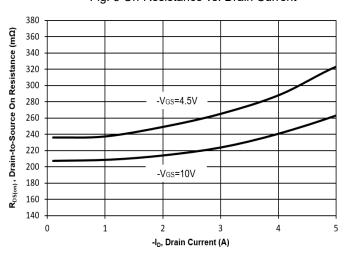


Fig. 4 On-Resistance vs. Gate-Source Voltage

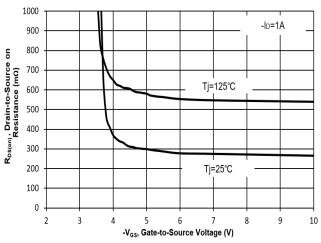


Fig. 5 On-Resistance $vs.T_j$

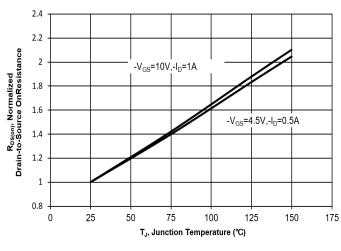
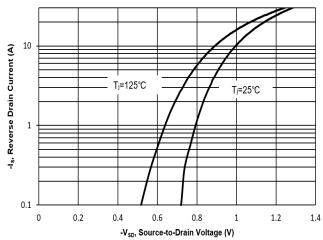


Fig. 6 Typical Body-Diode Forward Characteristics





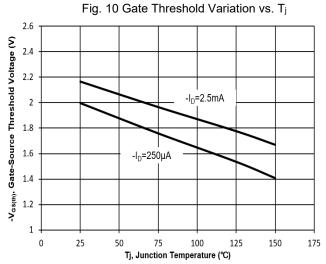
Electrical Characteristics Curves

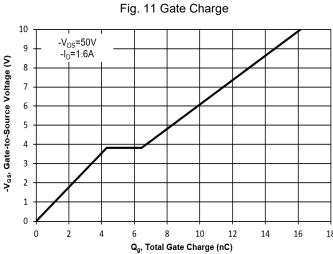
Fig. 7 Typical Junction Capacitance 10000 f=1MHz C_j, Junction Capacitance (pF) 1000 100 Coss Crss 10 1 0 20 60 80 100

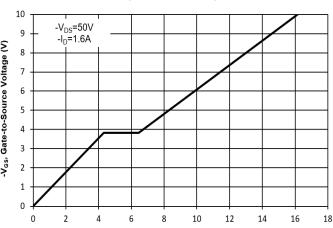
-V_{DS}, Drain-Source Voltage (V)

Fig. 8 Drain-Source Leakage Current vs. Ti 10 -l_{bss}, Drain-Source Leakage Current (µA) -V_{DS}=100V 0.1 0.01 0 25 50 75 100 125 150 175 T_J, Junction Temperature (℃)

Fig. 9 $V_{(BR)DSS}$ vs. Junction Temperature 1.12 -V_{Dss}, Normalized Drain-Source Breakdown Voltage -I_D=250µA 1.1 1.08 1.06 1.04 1.02 0.98 0 25 50 75 100 125 150 175 T_J , Junction Temperature (°C)

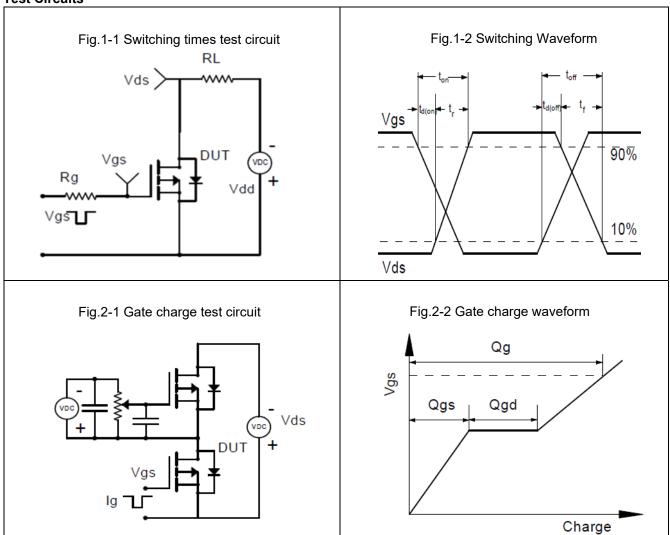








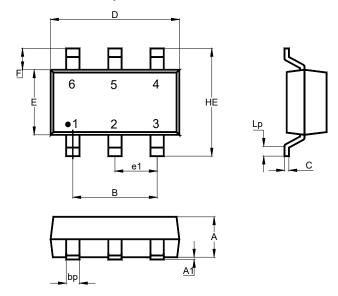
Test Circuits





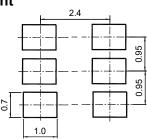
Package Outline (Dimensions in mm)

SOT-26



Unit	Α	A1	В	С	D	Ε	e1	F	HE	Lp	bp
	1.2	0.1	2.1	0.20	3.1	1.7	0.95	0.65	3.0	0.6	0.5
mm	1.0	0	1.7	0.08	2.7	1.3	typ.	0.6	2.6	0.2	0.3

Recommended Soldering Footprint



Packing information

Package	Tape Width	Pitch		Ree	el Size	Day Book Booking Quantity	
rackage	(mm)	mm	inch	mm	inch	Per Reel Packing Quantity	
SOT-26	8	4 ± 0.1	0.157 ± 0.004	178	7	3,000	

Marking information

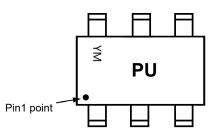
" PU " = Part No.

"YM" = Date Code Marking

"Y" = Year

"M" = Month

Font type: Arial



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