



DESCRIPTION

P-channel MOSFET

Features

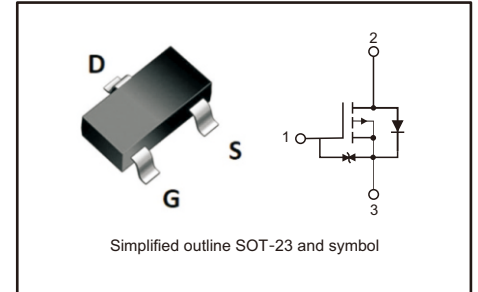
- Low On-Resistance
- low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Small Surface Mount Package
- ESD Protected Gate
- Totally Lead-Free & Fully RoHs Compliant(Note 1)
- Halogen and Antimony Free. "Green" Device (Note2)

Mechanical Data

- Case:SOT-23
- Case Material:Molded Plastic.
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity:Level 1 per J-STD-202
- Terminals:Solderable per MIL-STD-202,Method208
- Lead Free Plating-Matte Tin Finish Annealed over Alloy 42 Leadframe).^③

PINNING

PIN	DESCRIPTION
1	GATE
2	DRAIN
3	SOURCE



Absolute Maximum Ratings (TA=25°C, unless otherwise specified)

Parameter	Symbols	Ratings	Units
Drain-Source Voltage	V_{DSS}	-20	V
Gate-Source Voltage	V_{GSS}	±12	V
Continuous Drain Current	I_D	-660	mA
Power Dissipation	P_D	0.35	W
Thermal Resistance,Junction-to-Ambient	$R_{\theta JA}$	357	°C/W
Operation Junction Temperature And Storage Temperature	T_j, T_{stg}	-55 ~ +150	°C

Notes: 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. Halogen-and Antimony-free "Green" products are defined as those which contain <900ppm bromine,<900ppm chlorine (<1500ppm total Br +Cl) and <1000ppm antimony compounds.



Parameter Units	Symbols	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	$B_{V_{DS}}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS} = -20V, V_{GS} = 0V$			-1	μA
Gate- Source Leakage Current	Forward	I_{GSS}	$V_{GS} = 20V, V_{DS} = 0V$		20	μA
	Reverse		$V_{GS} = -20V, V_{DS} = 0V$		-20	
On Characteristics						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.35	-0.45	-1.1	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS} = -4.5V, I_D = -1A$		5	8	Ω
		$V_{GS} = -2.5V, I_D = -0.08A$		8	13	Ω
		$V_{GS} = -2.5V, I_D = -0.5A$		8	13	Ω
HBM	ESD	$V_{DS} = -10V, I_D = -0.115A$	2.0			KV
Forward Transconductance	g_{FS}	$V_{DS} = -10V, I_D = -0.54A$	20			mS

Dynamic Characteristics

Input Capacitance	C_{ISS}	$V_{DS} = -16V,$ $V_{GS} = 0V,$ $f = 1.0MHz$		113	170	pF
Output Capacitance	C_{OSS}			15	25	pF
Reverse Transfer Capacitance	C_{RSS}			9	15	pF
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	$V_{GS} = -4.5V, V_{DS} = -10V,$ $I_D = -200mA, R_g = 10\Omega$		9		ns
Turn-On Rise Time	t_r			5.8		
Turn-Off Delay Time	$t_{d(off)}$			32.7		
Turn-Off Fall Time	t_f			20.3		



Fig.1 Typical Output Characteristic

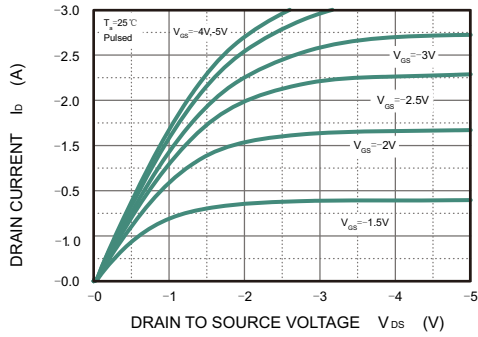


Fig.2 Typical Transfer Characteristics

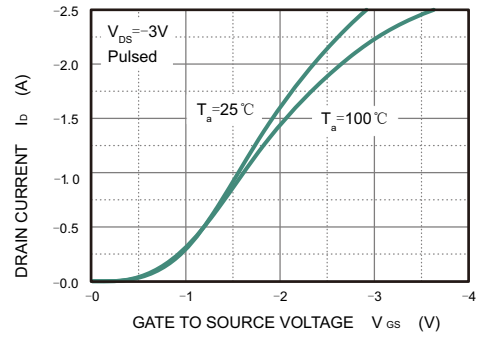


Fig.3 $R_{DS(ON)}$ — I_D

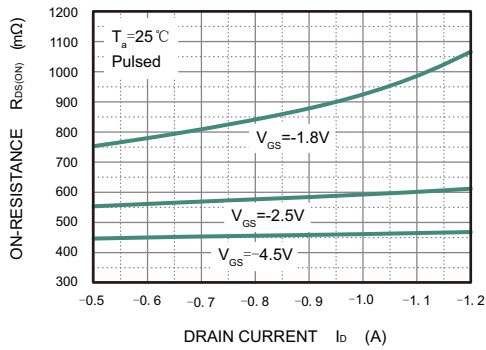


Fig.4 $R_{DS(ON)}$ — V_{GS}

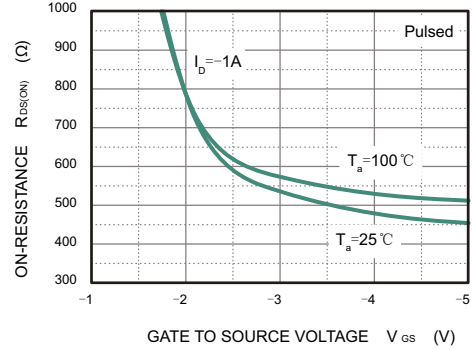


Fig.5 I_S — V_{SD}

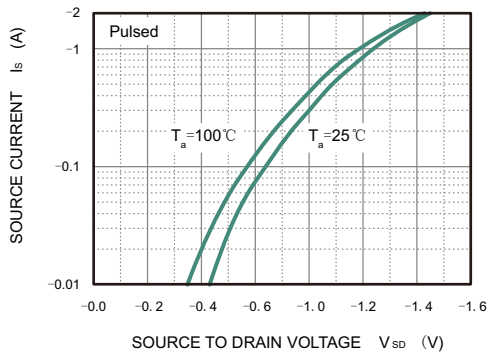
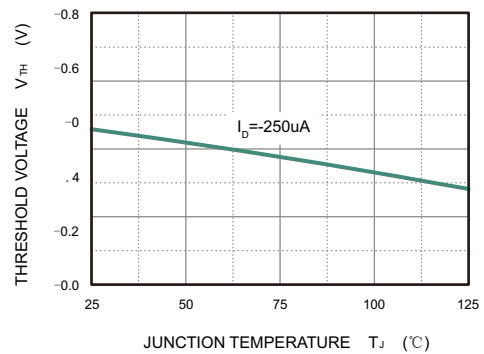
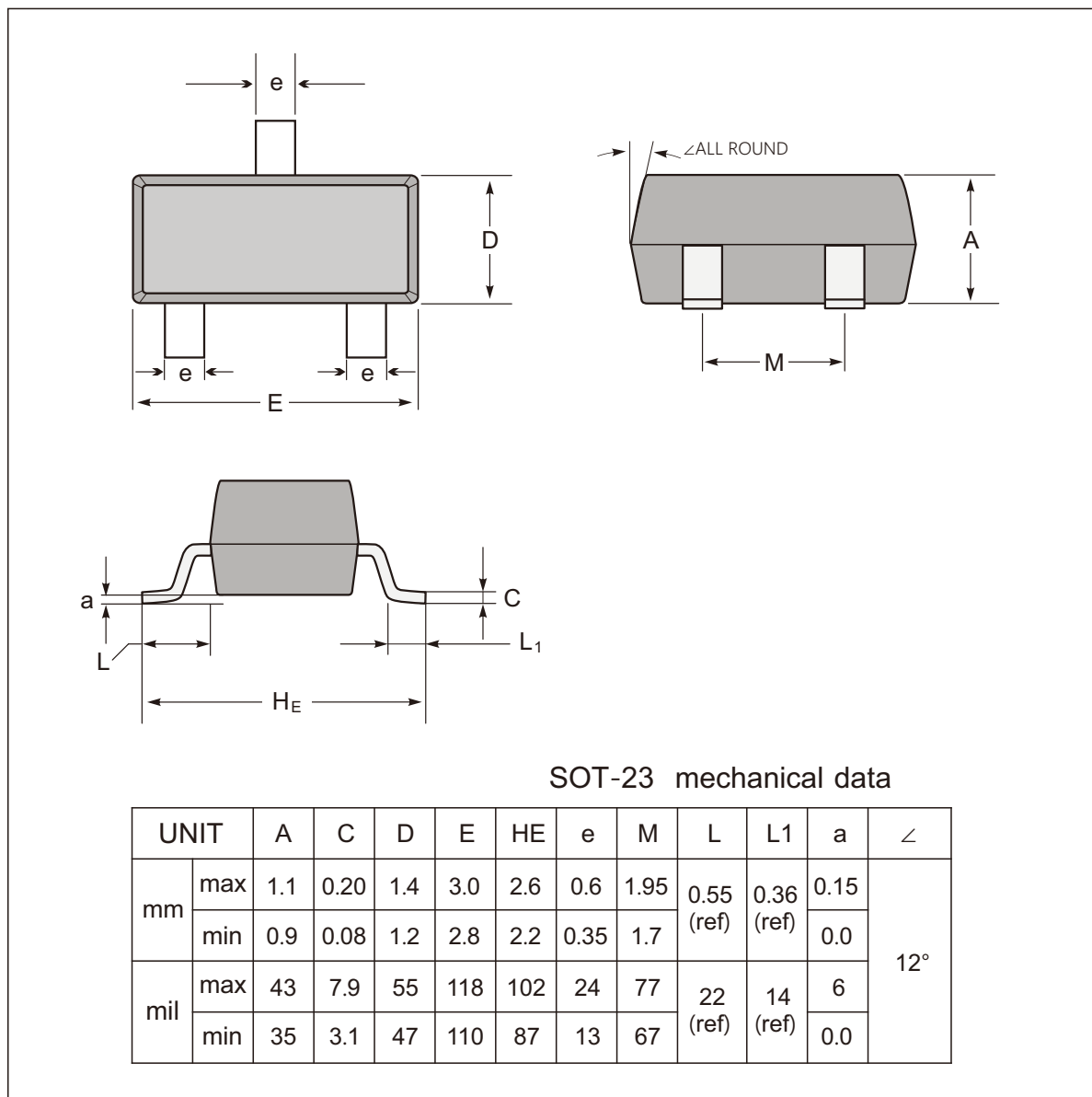


Fig.6 Threshold Voltage

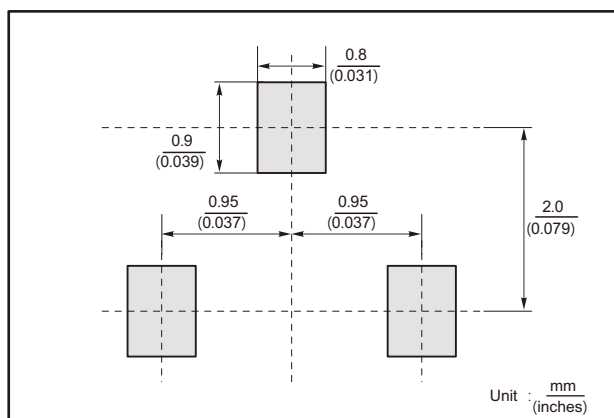




SOT-23 Package Outline Dimensions



The recommended mounting pad size



Marking

Type number	Marking code
PM3139KWD	3139



Important Notice and Disclaimer

Jingdao Microelectronics reserves the right to make changes to this document and its products and specifications at any time without notice.

Customers should obtain and confirm the latest product information and specifications before final design, purchase or use.

Jingdao Microelectronics makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, not does Jingdao Microelectronics assume any liability for application assistance or customer product design.

Jingdao Microelectronics does not warrant or accept any liability with products which are purchased or used for any unintended or unauthorized application.

No license is granted by implication or otherwise under any intellectual property rights of Jingdao Microelectronics.

Jingdao Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of Jingdao Microelectronics.