

20V N-Channel MOSFET

MOSFET Product Summar

V_{DS}	$R_{DS(ON)}(Typ.)$	I_D
20V	19m Ω @ $V_{GS}=4.5V$	4.5A
	25m Ω @ $V_{GS}=2.5V$	

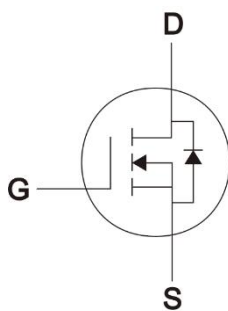
Description

The PM2300AL uses advanced Trench technology and designs to provide excellent $R_{DS(ON)}$ with low gate charge and operation with gate voltage as low as 1.8V. It can be used in a wide variety of applications. The package form is SOT-23, which accord with the RoHS standard and Halogen Free standard.

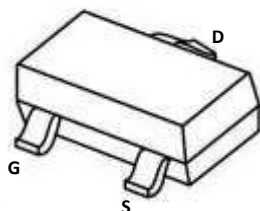
Features

- Fast Switching
- Low Gate Charge and $R_{DS(ON)}$
- Low Reverse transfer capacitances

Dimensions and Pinonfiguration



Circuit diagram



SOT-23

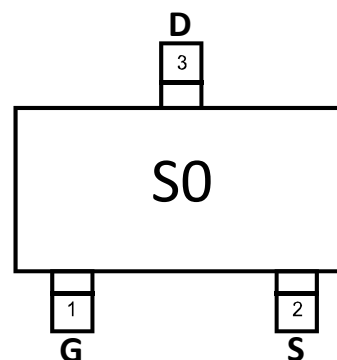
Mechanical Characteristics

- Package: SOT-23
- Case Material: "Green" Molding Compound
- Marking Information: See Below

Applications

- DC-DC converter
- Portable Equipment
- Power management

Marking Information



S0 = Device Making Code

Ordering Information

Part Number	Shipping	Reel Size
PM2300AL	3000/Tape & Reel	7 inch

Absolute Maximum Ratings ($T_A=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 10	V

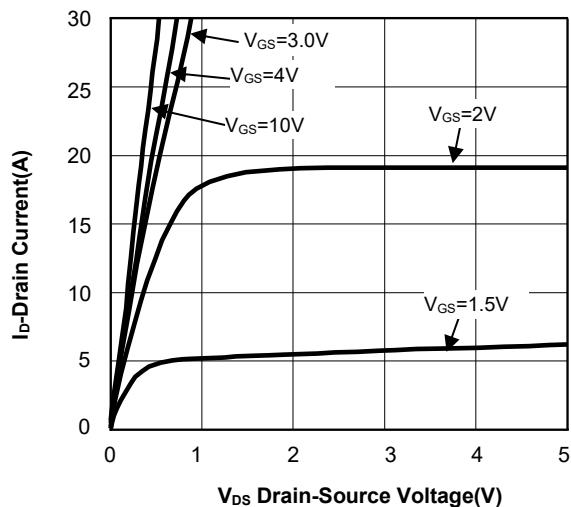
Continuous Drain Current	I_D	4.5	A
Pulsed Drain Current _(note1)	I_{DM}	18	A
Power Dissipation	P_D	1.0	W
Junction Temperature	T_J	-55~ +150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

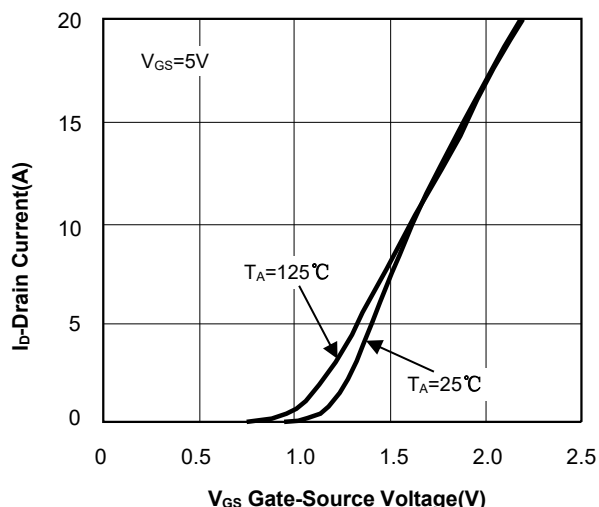
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	20	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =20V,V _{GS} = 0V	-	-	1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±10V, V _{DS} = 0V	-	-	±100	nA
Gate threshold voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	0.5	0.7	1.0	V
Drain-source on-resistance _(note3)	R _{DS(ON)}	V _{GS} =4.5V, I _D =4.5A	-	19	25	mΩ
		V _{GS} =2.5V, I _D =3.0A	-	25	32	
Diode Forward Current	I _S		-	-	4.5	A
Diode Forward voltage	V _{SD}	I _S =4.5A,V _{GS} =0V	-	-	1.2	V
Dynamic characteristics _(note3)						
Input Capacitance	C _{iss}	V _{DS} =10V,V _{GS} =0V,f=1MHz	-	620	-	pF
Output Capacitance	C _{oss}		-	110	-	
Reverse Transfer Capacitance	C _{rss}		-	60	-	
Switching Characteristics _(note3)						
Turn-on delay time	t _{d(on)}	V _{GS} =4.5V, V _{DS} =10V, RG=3Ω,I _D =0.5A	-	13	-	ns
Turn-on rise time	t _r		-	54	-	
Turn-off delay time	t _{d(off)}		-	17.3	-	
Turn-off fall time	t _f		-	11	-	
Total Gate Charge	Q _g	V _{GS} =4.5V,V _{DS} =10V,I _D =4.5A	-	7.1	-	nC
Gate Source Charge	Q _{gs}		-	1.4	-	
Gate Drain Charge	Q _{gd}		-	1.9	-	

Notes: 1、 Repetitive rating; pulse width limited by maximum junction temperature

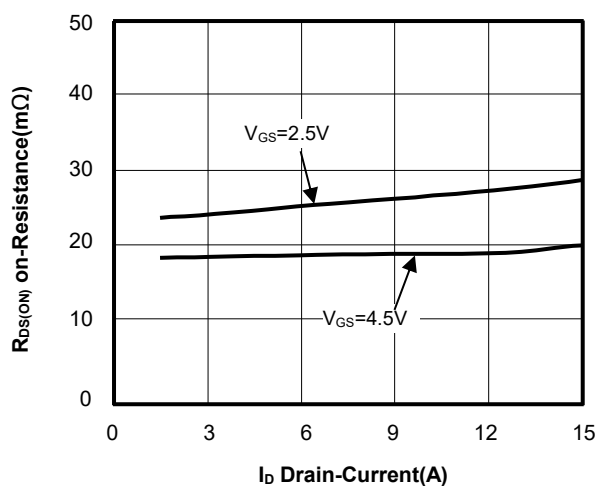
Typical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)



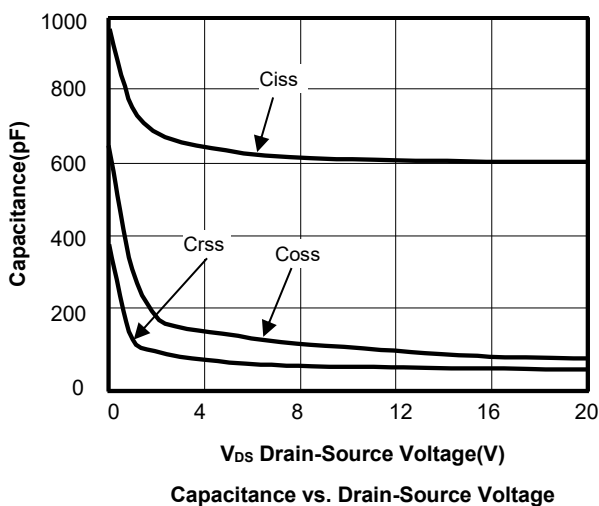
Drain Current vs. Drain-Source Voltage



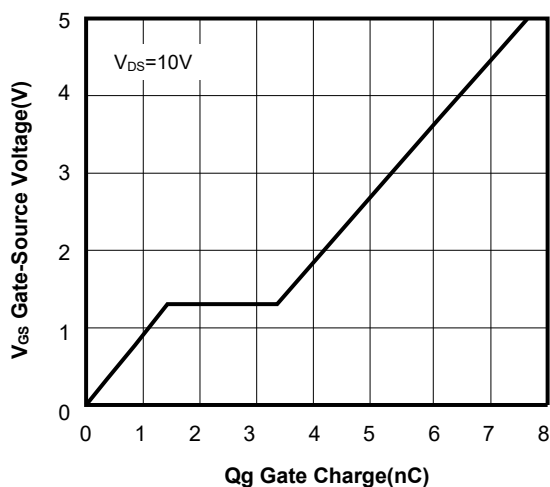
Drain Current vs. Gate-Source Voltage



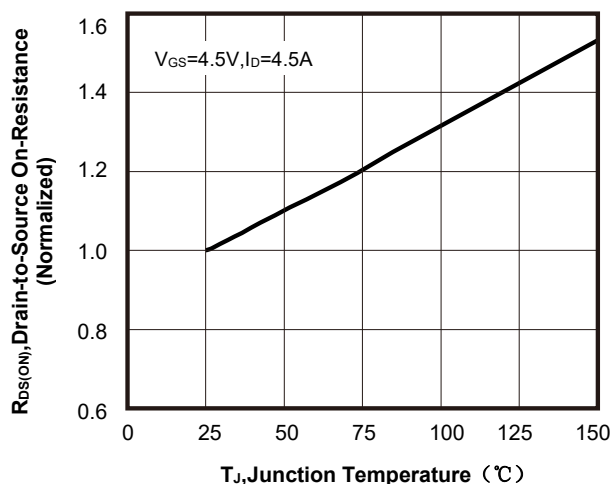
$R_{DS(ON)}$ On-Resistance vs. Drain-Current



Capacitance vs. Drain-Source Voltage

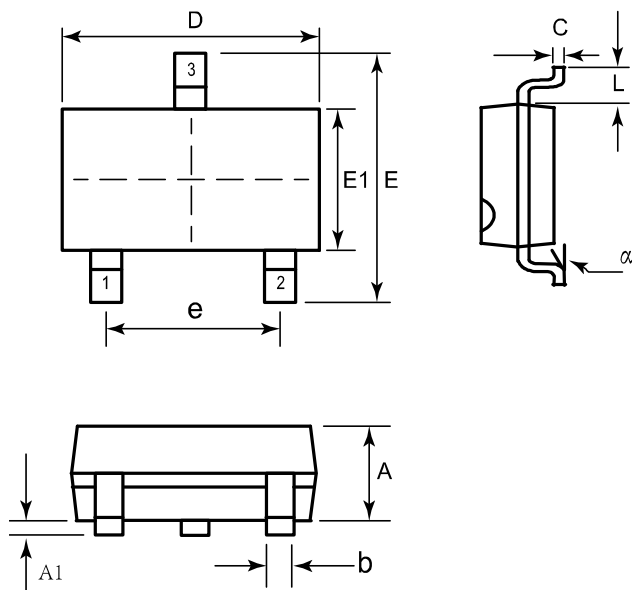


Drain Current vs. Drain-Source Voltage



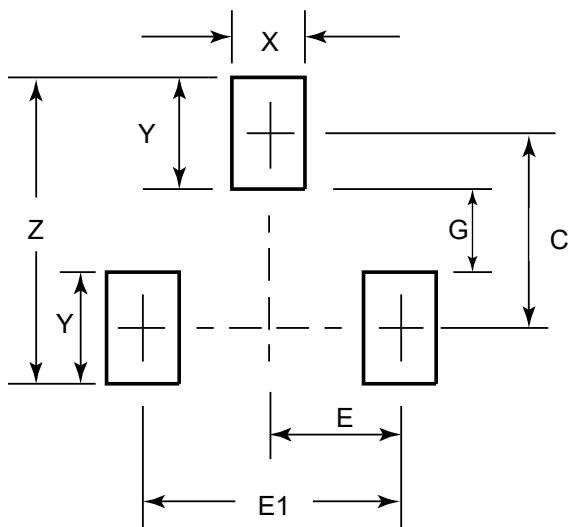
Normalized On-Resistance vs. Temperature

SOT-23 Package Outline Drawing



SYM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.035	0.037	0.040	0.88	0.95	1.02
A1	0.000	-	0.004	0.01	-	0.10
b	0.012	-	0.020	0.30	-	0.51
C	0.003	-	0.007	0.08	-	0.18
D	0.110	0.114	0.120	2.80	2.90	3.04
E	0.082	0.093	0.104	2.10	2.37	2.64
E1	0.047	0.051	0.055	1.20	1.30	1.40
e	0.075 BSC			1.90 BSC		
L	0.022 BSC			0.55 BSC		
α	0°		8°	0°		8°

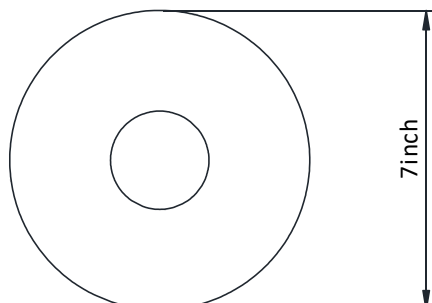
Suggested Land Pattern



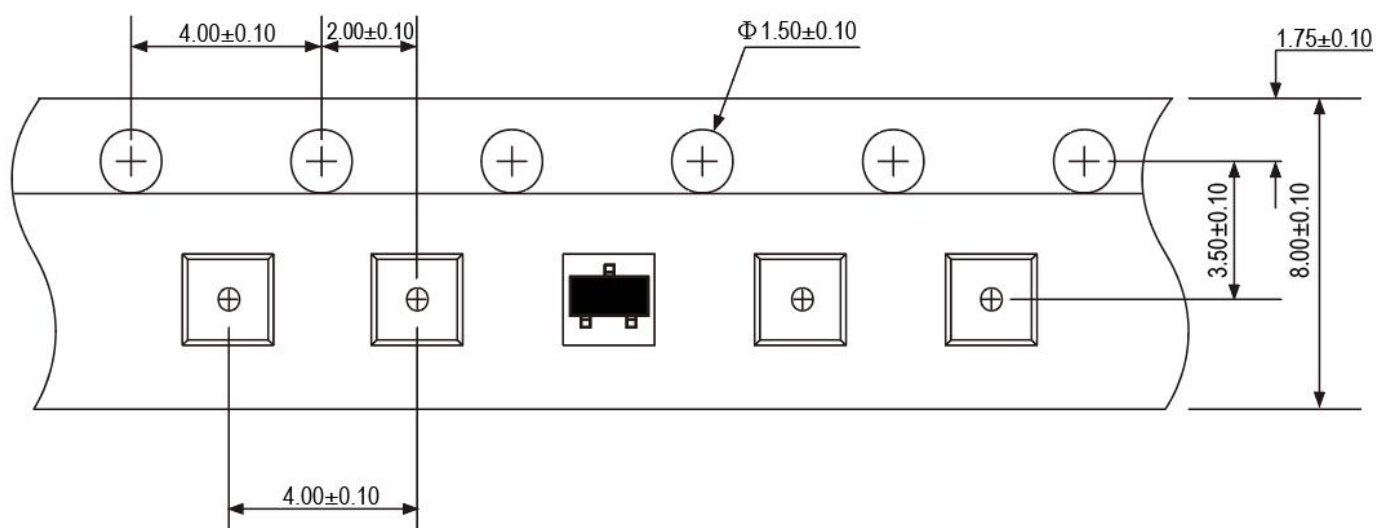
SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	2.20	0.087
E	0.95	0.037
E1	1.90	0.075
G	0.80	0.031
X	1.00	0.039
Y	1.40	0.055
Z	3.60	0.141

TAPE AND REEL INFORMATION

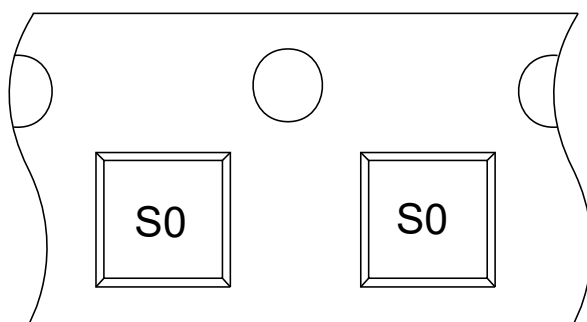
Reel Dimensions



Tape Dimensions



Unit:mm



→
User Direction of Feed

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