

60V N-Channel MOSFET

MOSFET Product Summar

V_{DS}	$R_{DS(ON)}(Typ.)$	I_D
60V	65m Ω @ $V_{GS}=10V$	3.0A
	80m Ω @ $V_{GS}=4.5V$	

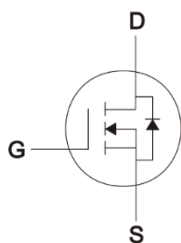
Description

The PM2310 uses advanced Trench technology and designs to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use in PWM, load switching and general purpose applications.

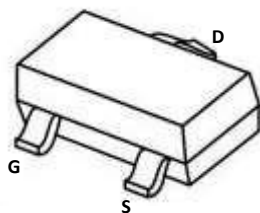
Features

- Exceptional on-resistance and maximum DC current capability
- High dense cell design for extremely low $R_{DS(ON)}$
- TrenchFET Power MOSFET
- Pb-Free,RoHS Compliant

Dimensions and Pinonfiguration



Circuit diagram



SOT-23

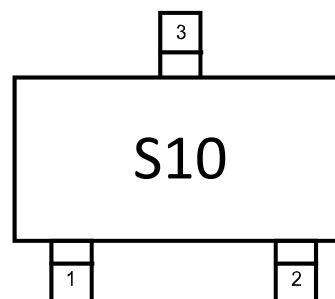
Mechanical Characteristics

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

Applications

- Load Switch for Portable Devices
- Interfacing Switching

Marking Information



S10 = Device Making Code

Ordering Information

Part Number	Shipping	Reel Size
PM2310	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}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current (note1)	I_D	3.0	A
Pulsed Drain Current	I_{DM}	10	A
Power Dissipation	P_D	0.90	W

Thermal Resistance from Junction to Ambient ^(note2)	$R_{\theta JA}$	425	°C/W
Junction Temperature	T_J	125	°C
Storage Temperature	T_{STG}	-50~ +150	°C

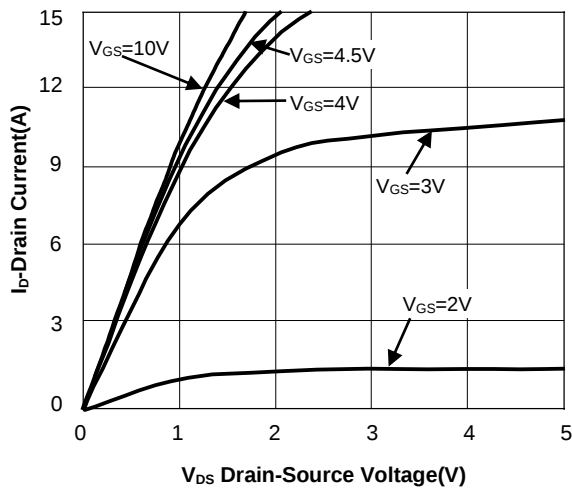
Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	60	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =60V,V _{GS} = 0V	-	-	1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V	-	-	±100	nA
Gate threshold voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	1.2	1.4	1.9	V
Drain-source on-resistance ^(note3)	R _{DS(ON)}	V _{GS} =10V, I _D =3A	-	65	95	mΩ
		V _{GS} =4.5V, I _D =2A	-	80	100	
Forward tranconductance	g _{fs}	V _{DS} =5V, I _D =2A	-	3.0	-	S
Drain-Source diode Characteristics and maximum ratings (note3)						
Diode forward voltage	V _{SD}	I _S =3A,V _{GS} =0V	-	0.82	1.0	V
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =30V,V _{GS} =0V,f=1MHz	-	392	-	pF
Output Capacitance	C _{oss}		-	26	-	
Reverse Transfer Capacitance	C _{rss}		-	22	-	
Gate resistance	R _g	V _{DS} =0V,V _{GS} =0V,f=1MHz	-	3.5	-	Ω
Total gate charge	Q _g	V _{DS} =30V,V _{GS} =10V,I _D =3A	-	9.8	-	nC
Gate-source charge	Q _{gs}		-	0.8	-	
Gate-drain charge	Q _{gd}		-	2.3	-	
Switching Characteristics						
Turn-on delay time	t _{d(on)}	V _{GS} =10V,V _{DS} =30V, R _L =5.1Ω,R _G =10Ω	-	4.8	-	ns
Turn-on rise time	t _r		-	37	-	
Turn-off delay time	t _{d(off)}		-	16	-	
Turn-off fall time	t _f		-	27	-	

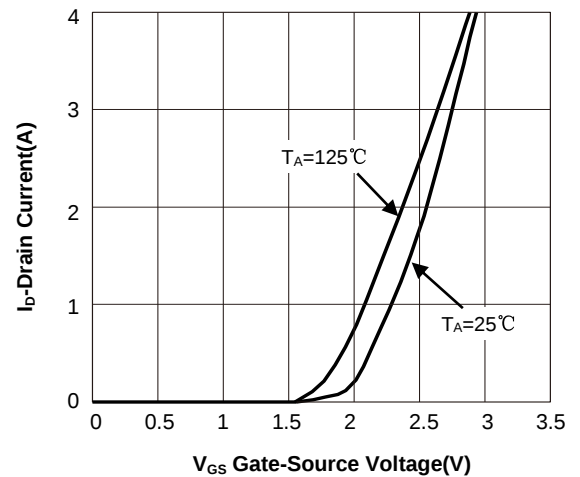
Notes:

1. Repetitive Rating : Pulse width limited by maximum junction temper
2. Surface Mounted on FR4 Board, $t < 5$ sec
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production testing.

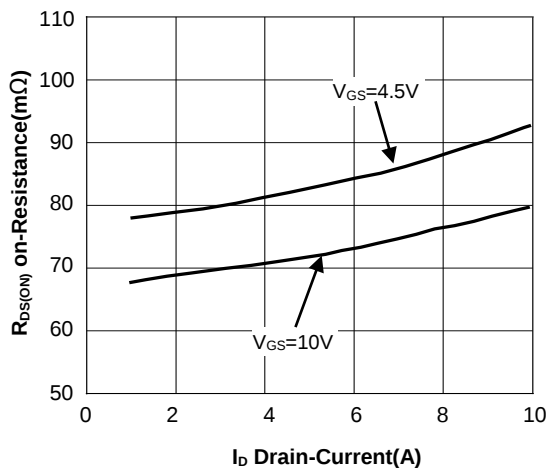
Typical Characteristics($T_A=25^\circ C$ unless otherwise specified)



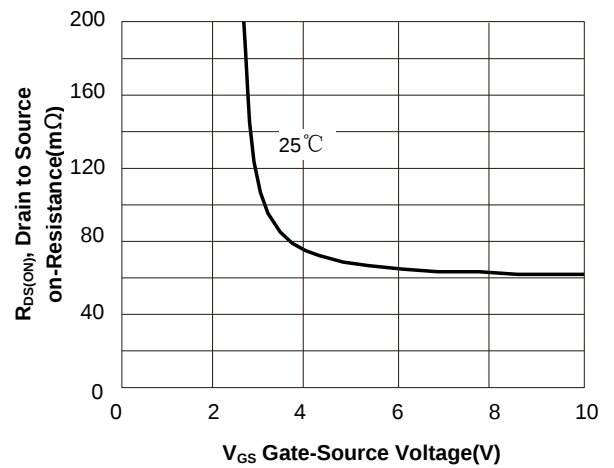
Drain Current vs. Drain-Source Voltage



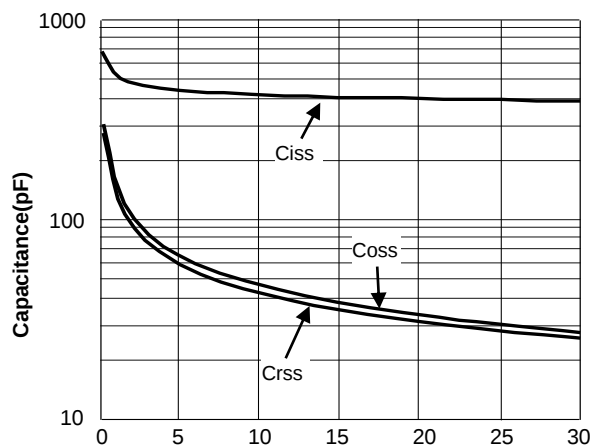
Drain Current vs. Gate-Source Voltage



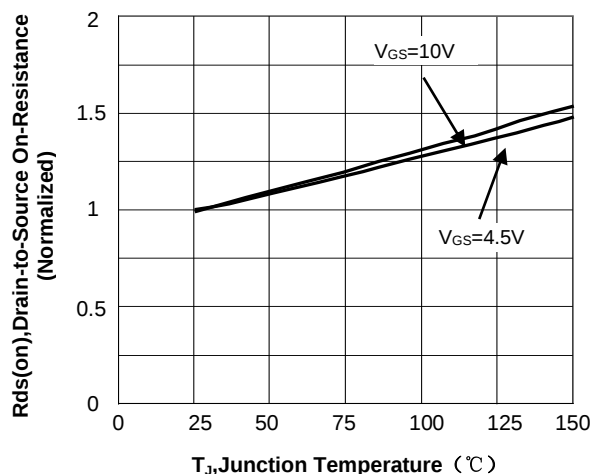
$R_{DS(ON)}$ On-Resistance vs. Drain-Current



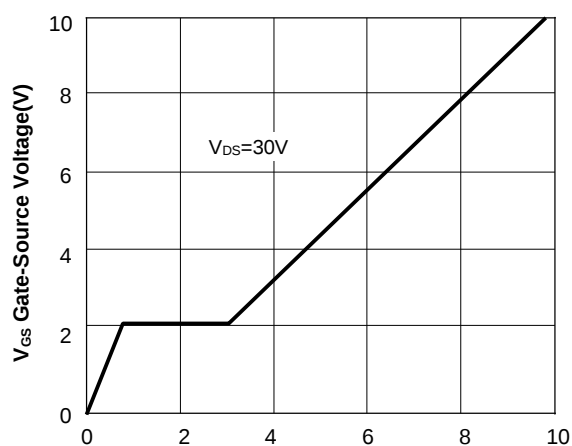
On-Resistance vs. Gate-Source Voltage



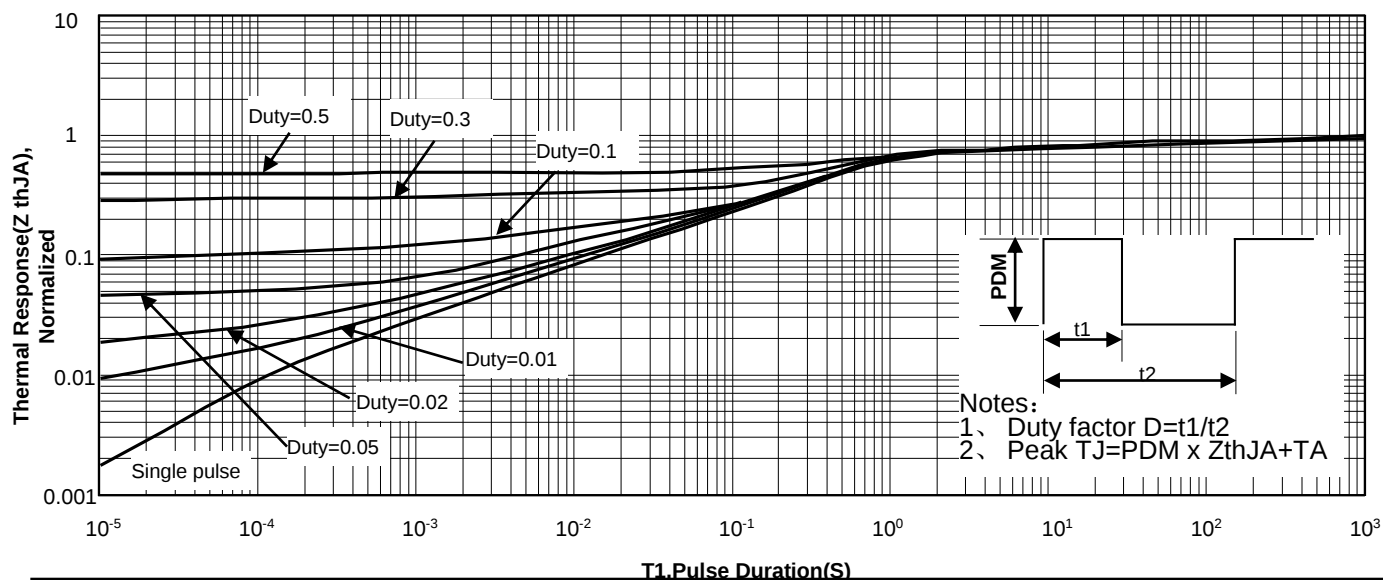
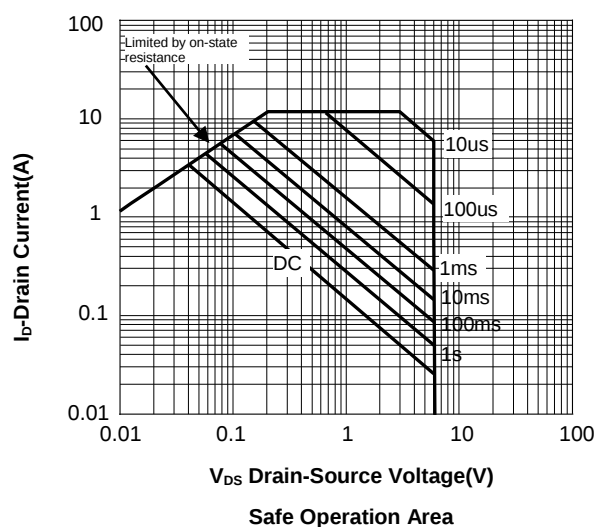
Capacitance vs. Drain-Source Voltage



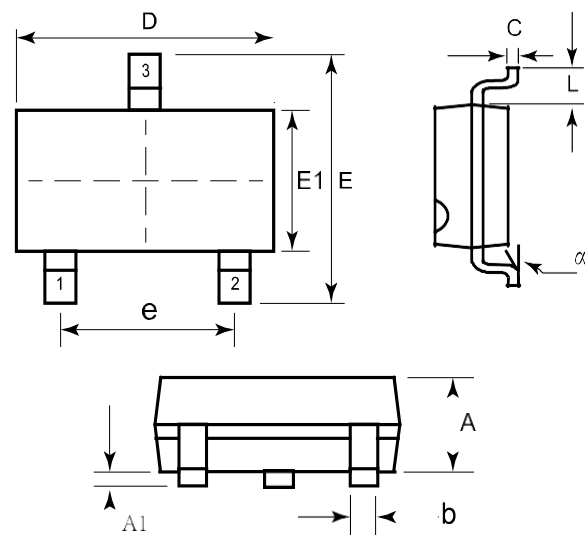
Normalized On-Resistance vs. Temperature



Drain Current vs. Drain-Source Voltage

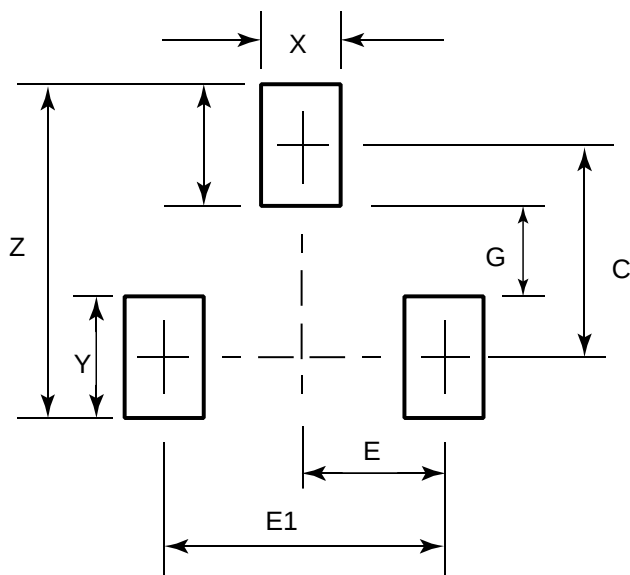


SOT-23 Package Outline Drawing



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°

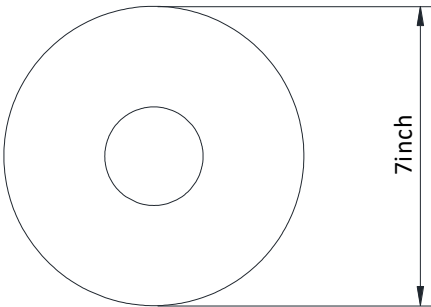
Suggested Land Pattern



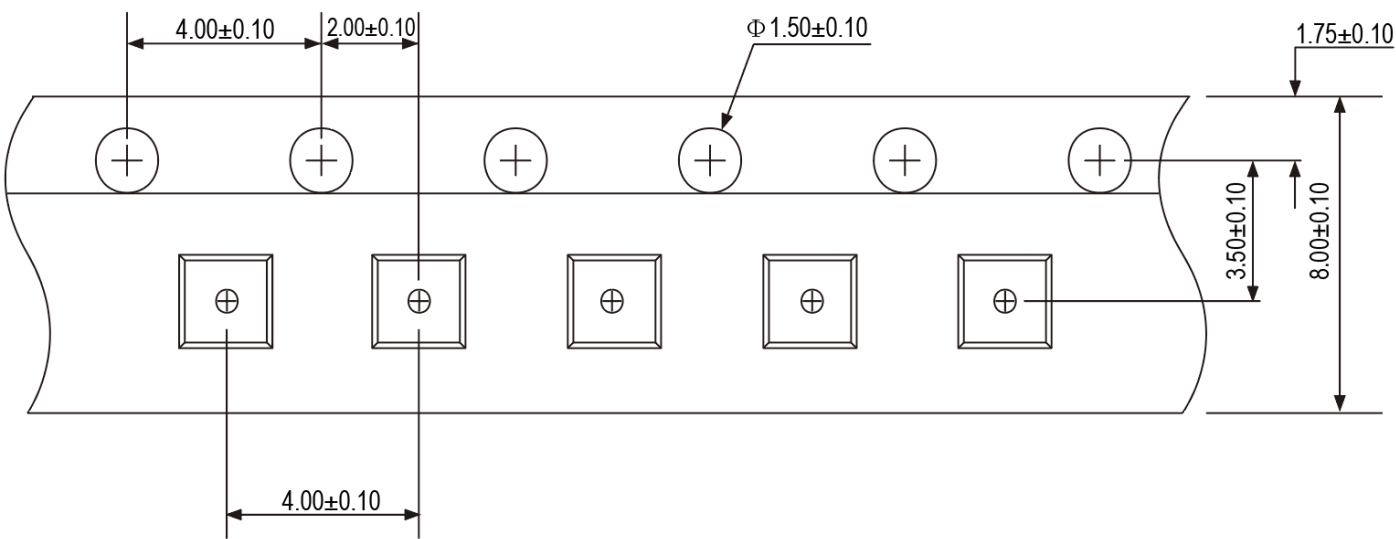
SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	2.20	0.087
E	0.95	0.037
E1	1.90	0.075
G	0.80	0.031
X	1.00	0.039
Y	1.40	0.055
Z	3.60	0.141

TAPE AND REEL INFORMATION

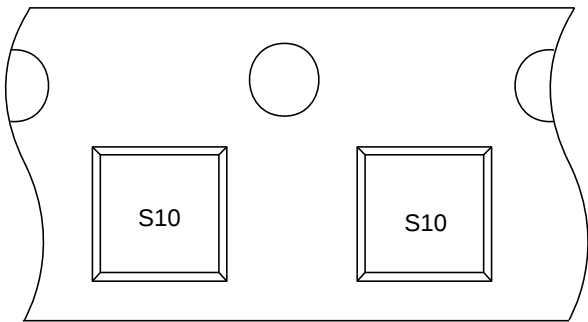
Reel Dimensions



Tape Dimensions



Unit:mm



User Direction of Feed

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