

SOT-723 20V 280mΩ N-Channel MOSFET

MOSFET Product Summary

V_{DS}	$R_{DS(ON)}(Typ.)$	I_D
20V	280mΩ @ $V_{GS}=4.5V$	0.7A
	385mΩ @ $V_{GS}=2.5V$	

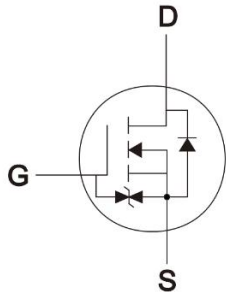
Description

The PM02N01BM 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.

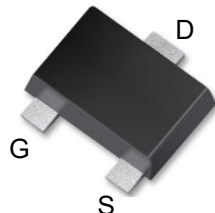
Features

- Surface Mount Package
- Operated at Low Logic Level Gate Drive
- ESD Protected

Dimensions and Pin Configuration



Circuit Diagram



SOT-723(Top view)

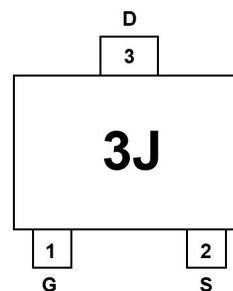
Mechanical Characteristics

- Package: SOT-723
- Case Material: "Green" Molding Compound
- Marking Information: See Below

Applications

- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

Marking Information



3J = Device Marking Code

Ordering Information

Part Number	Shipping	Reel Size
PM02N01BM	8000/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 ^(Note1)	I_D	0.7	A
Pulsed Drain Current ^(Note2)	I_{DM}	1.2	A
Power Dissipation	P_D	0.15	W
Thermal Resistance from Junction to Ambient ^(Note3)	$R_{\theta JA}$	850	$^{\circ}C/W$

Junction Temperature	T_J	-55~ +150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

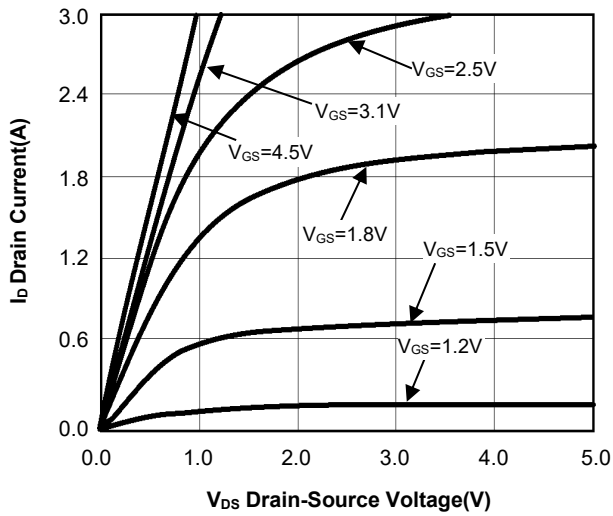
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$	-	-	1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$	-	-	± 10	μA
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.4	0.6	0.9	V
Drain-to-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=0.7A$	-	280	360	m Ω
		$V_{GS}=2.5V, I_D=0.5A$	-	385	480	
Diode Forward Voltage	V_{SD}	$I_S=0.7A, V_{GS}=0V$	-	0.9	1.25	V
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V,$ $f=1MHz$	-	28.8	-	pF
Output Capacitance	C_{oss}		-	9.2	-	
Reverse Transfer Capacitance	C_{rss}		-	2.1	-	
Switching Characteristics						
Gate Total Charge	Q_g	$V_{GS}=4.5V, V_{DS}=10V,$ $I_D=0.55A$	-	0.4	-	nC
Gate-to-Source Charge	Q_{gs}		-	0.07	-	
Gate-to-Drain Charge	Q_{gd}		-	0.12	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=4.5V, V_{DS}=10V,$ $I_D=0.55A, R_G=6\Omega$	-	5.2	-	ns
Turn-On Rise Time	t_r		-	4.3	-	
Turn-Off Delay Time	$t_{d(off)}$		-	18	-	
Turn-Off Fall Time	t_f		-	3.6	-	

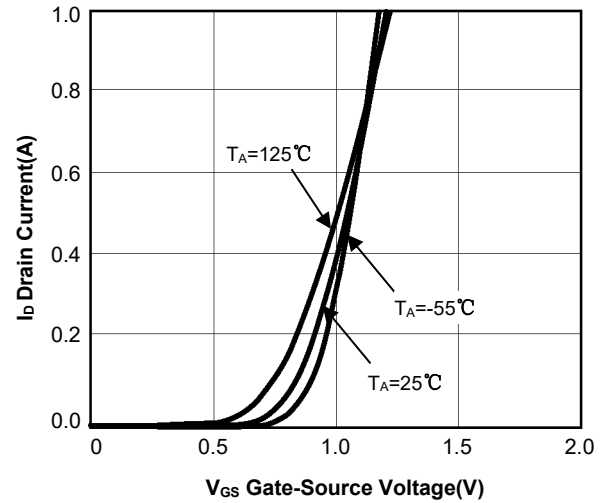
Notes:

1. This current is chip limited, which is calculated based on $R_{\theta JA}$.
2. This current is calculated on single pulse with 10 μs Pulse & Duty Cycle = 1%.
3. The value of $R_{\theta JA}$, which is steady state, is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, with $T_A=25^{\circ}\text{C}$.

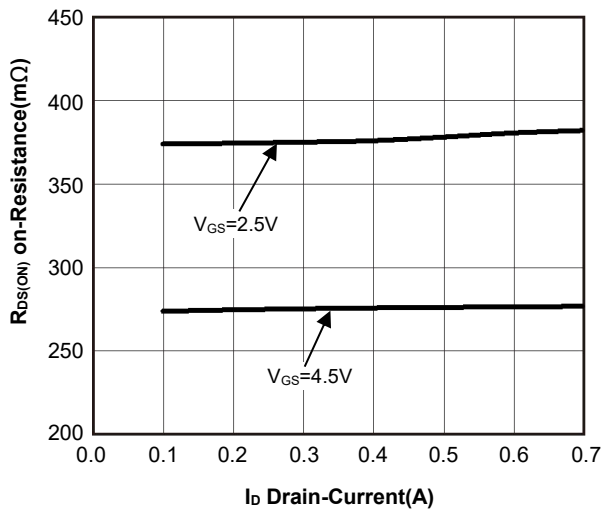
Typical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)



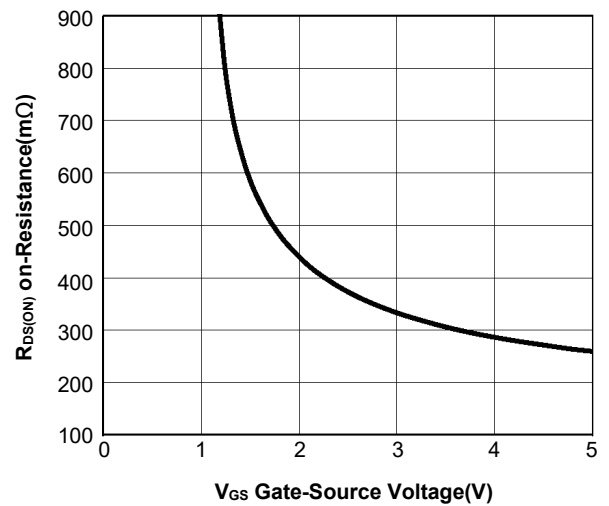
Drain Current vs. Drain-Source Voltage



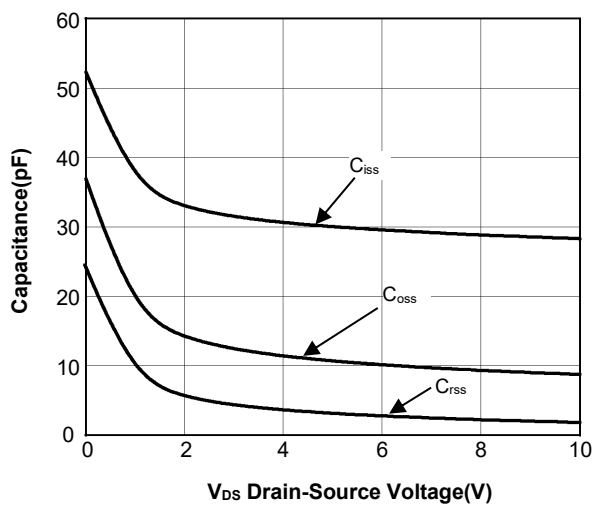
Drain Current vs. Gate-Source Voltage



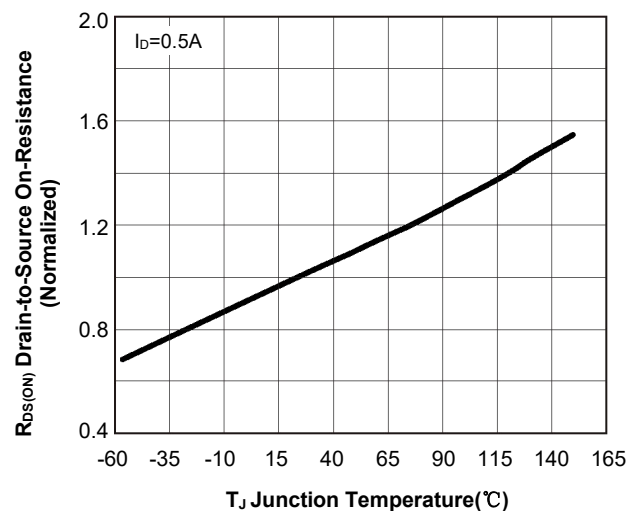
$R_{DS(on)}$ On-Resistance vs. Drain-Current



$R_{DS(on)}$ On-Resistance vs. Gate-Source Voltage

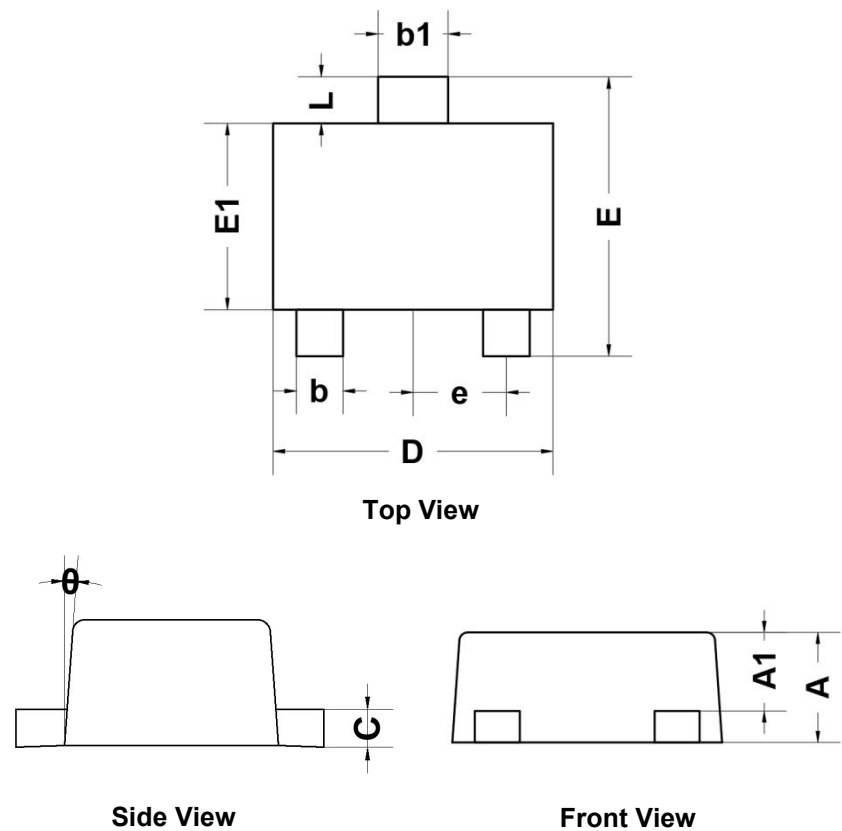


Capacitance vs. Drain-Source Voltage



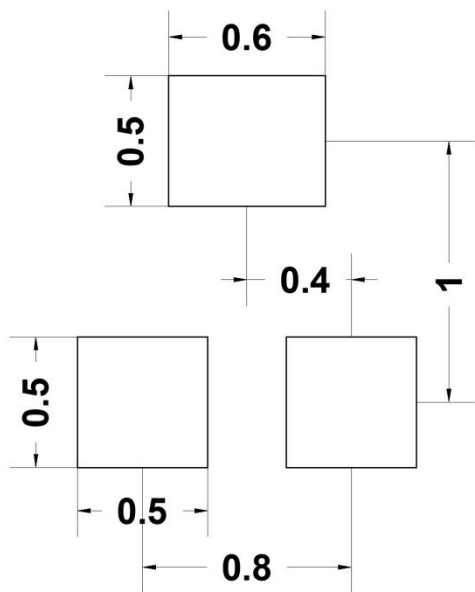
Normalized On-Resistance vs. Temperature

SOT-723 Package Outline Dimensions



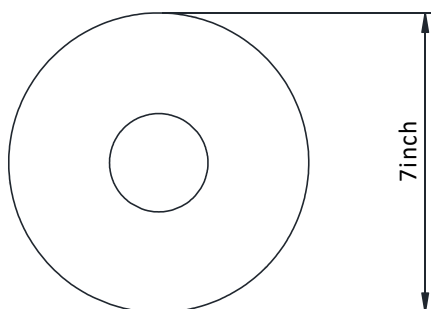
Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	0.44	0.49	0.54
A1	0.30	0.35	0.40
b	0.15	0.20	0.25
b1	0.25	0.30	0.35
L	0.10	0.20	0.30
C	0.117	0.147	0.177
D	1.10	1.20	1.30
E	1.10	1.20	1.30
E1	0.70	0.80	0.90
e	0.4BSC		
θ	0°	4°	7°

Recommended PCB Layout (Unit: mm)

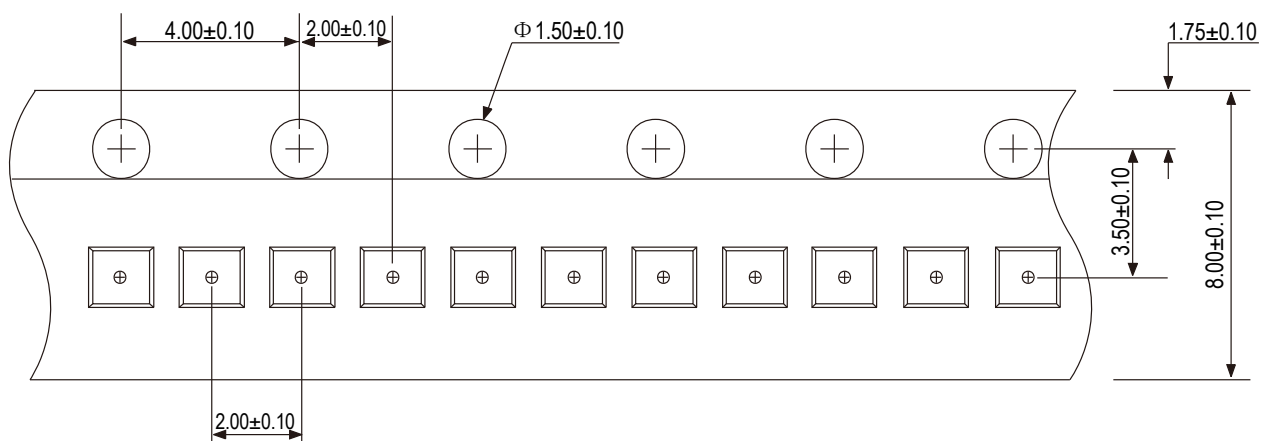


TAPE AND REEL INFORMATION

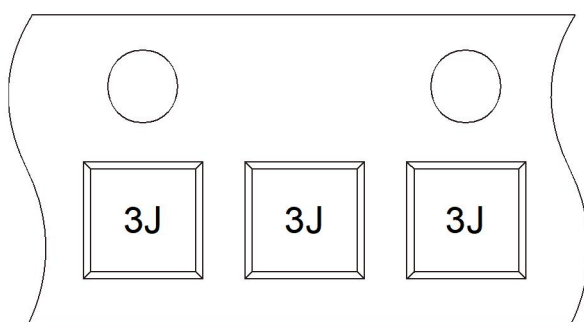
Reel Dimensions



Tape Dimensions



Unit:mm



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User Direction of Feed

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