60V N-Channel MOSFET

Description

The PM60N02M 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.

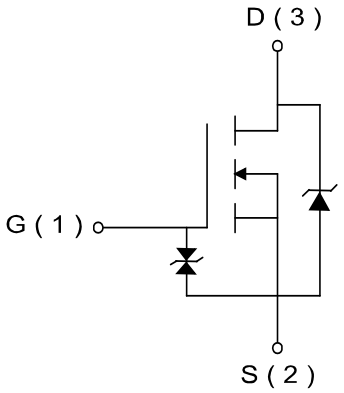
Features

- High density cell design for Low $R_{DS(on)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability
- ESD protected Gate HBM 1KV

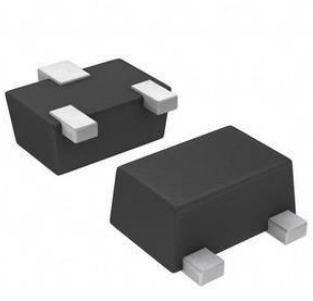
Applications

- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch

Dimensions and Pin Configuration



Circuit diagram



SOT-723

MOSFET Product Summary

V_{DS}	$R_{DS(ON)}$ @V_{GS}=10V	$V_{GS(th)}$	I_D
60V	4.5Ω	1.2V~1.5V	0.18A

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	0.18	A
Power Dissipation	P_D	0.15	W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

Electrical Characteristics (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
OFF Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =10μA	60			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =60V,V_{GS} = 0V			60	nA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±10	μA
Gate threshold voltage[1)]	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.2		1.5	V
Drain-source on-resistance[1)]	$R_{DS(on)}$	V_{GS} =10V, I_D =500mA		3.5	4.5	Ω
		V_{GS} =4.5V, I_D =50mA		3.5	4.5	
Diode Forward Voltage	V_{SD}			0.72	1	V
Maximum Body-Diode Continuous Current	I_S				0.2	A
Dynamic characteristics[1)]						
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V,f=1MHz			40	pF
Output Capacitance	C_{oss}				20	
Reverse Transfer Capacitance	C_{rss}				5	
Total Gate Charge	Q_g	I_D =0.2A, V_{DS} =6V, V_{GS} =4.5V		0.23		nC
Gate-to-Source Charge	Q_{gs}			0.05		
Gate-to-Drain(Miller) Charge	Q_{gd}			0.06		
Switching Characteristics[1)]						
Turn-on delay time	$t_{d(on)}$	V_{DS} =30V, V_{GS} =10V,R_G =25Ω, R_L =150Ω, I_D =0.2A			20	ns
Turn-off delay time	$t_{d(off)}$				20	
Total Gate Charge	Q_g	I_D =0.2A, V_{DS} =6V, V_{GS} =4.5V		0.23		nC
Gate-to-Source Charge	Q_{gs}			0.05		
Gate-to-Drain(Miller) Charge	Q_{gd}			0.06		

Notes:

1) These parameters have no way to verify.

Typical Characteristics

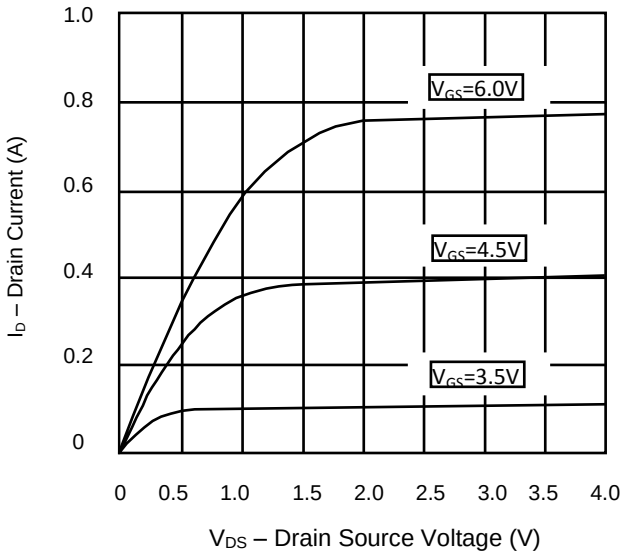


Fig 1. Output Characteristics

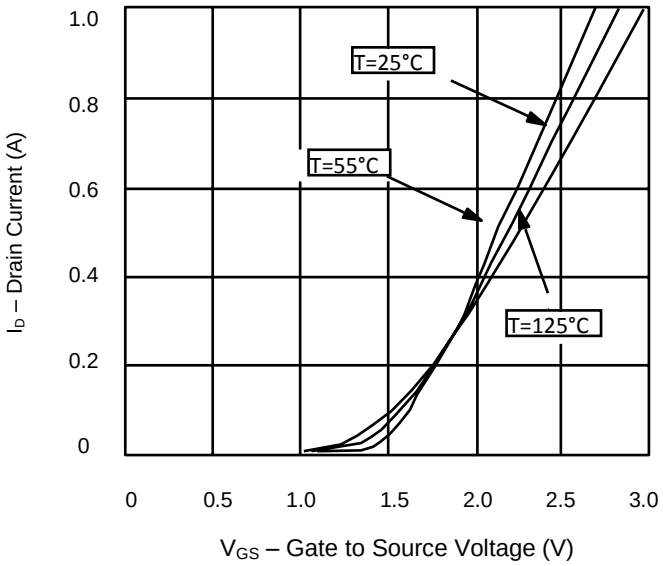


Fig 2. Transfer Characteristics

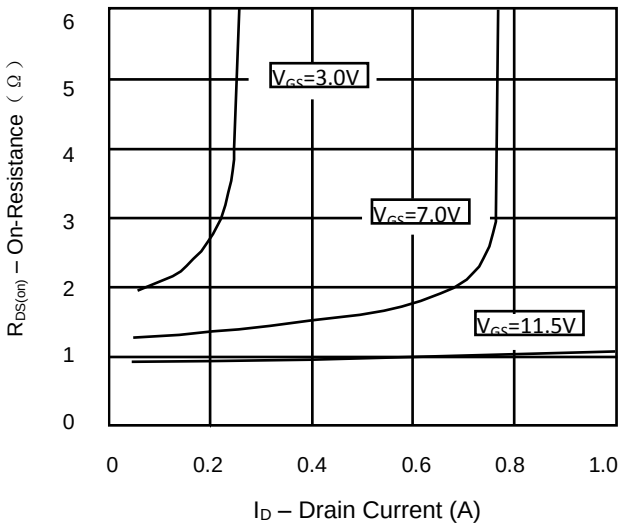


Fig 3. On-Resistance vs. Drain Current

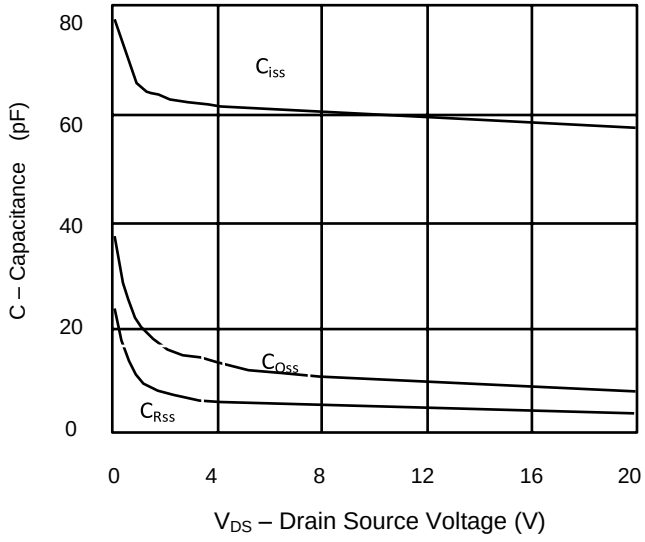
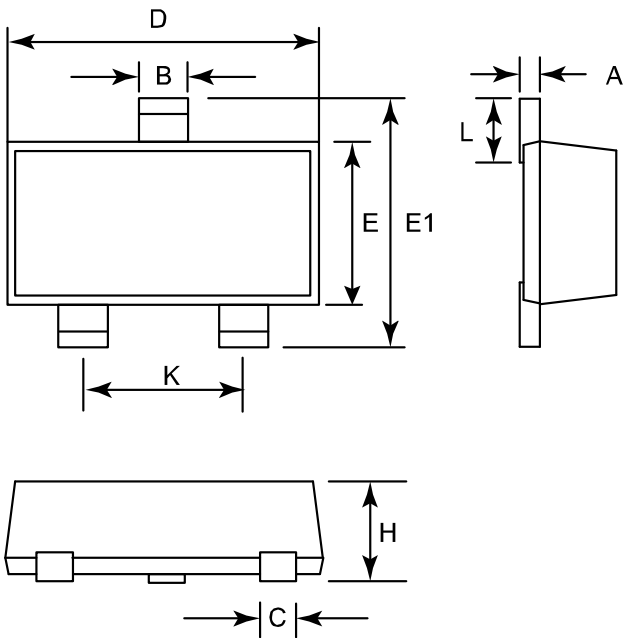


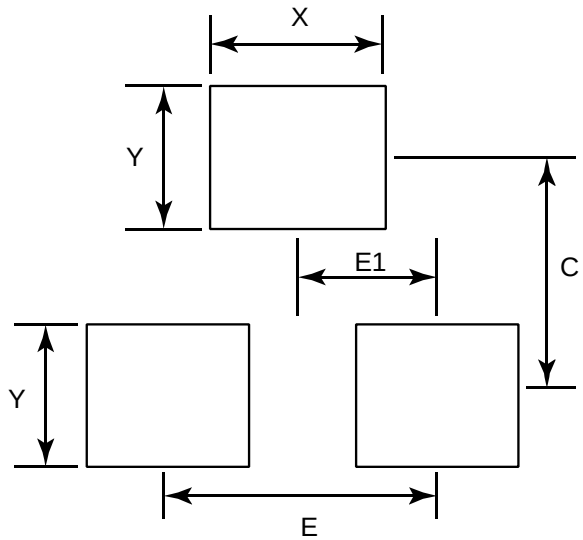
Fig 4. Capacitance

SOT-723 Package Outline Drawing



SYM	DIMENSIONS		
	MILLIMETERS		
	MIN	NOM	MAX
A	0.08		0.18
B	0.27		0.37
C	0.17		0.27
D	1.15	1.20	1.25
E	0.75	0.80	0.85
E1	1.15	1.20	1.25
K	0.75	0.80	0.85
L	0.25		0.30
H	0.43		0.55

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	1.00	0.04
E	0.80	0.03
E1	0.40	0.016
X	0.65	0.026
Y	0.60	0.024

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