

**30V N-Channel MOSFET**

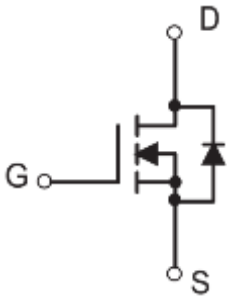
**Description**

The PM3400 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.

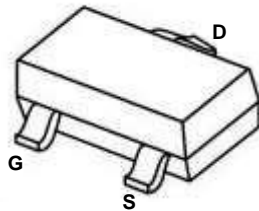
**Features**

- Trench Power MOSFET
- Excellent  $R_{DS(on)}$  and Low Gate Charge

**Dimensions and Pin Configuration**



Circuit diagram

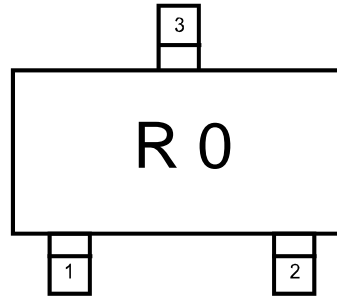


SOT-23

**Applications**

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

**Marking Information**



Device Marking Code

**MOSFET Product Summary**

$V_{DSS}$	$R_{DS(ON)}$	$I_D$
30V	35m $\Omega$ @ $V_{GS}=10V$	5.8A
	40m $\Omega$ @ $V_{GS}= 4.5V$	
	50m $\Omega$ @ $V_{GS}= 2.5V$	

**Absolute Maximum Ratings ( $T_A=25^\circ C$  unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current	$I_D$	5.8	A
Pulsed Drain Current <sup>1)</sup>	$I_{DM}$	30	A
Power Dissipation	$P_D$	0.35	W
Thermal Resistance from Junction to Ambient <sup>2)</sup>	$R_{\theta JA}$	357	$^\circ C/W$
Junction Temperature	$T_J$	150	$^\circ C$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^\circ C$

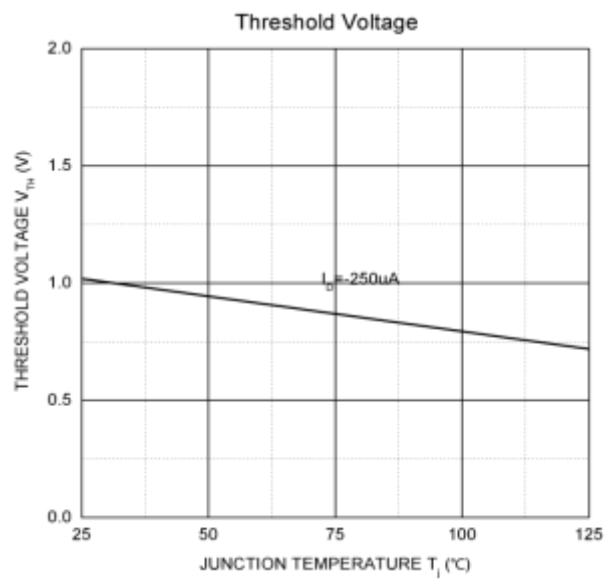
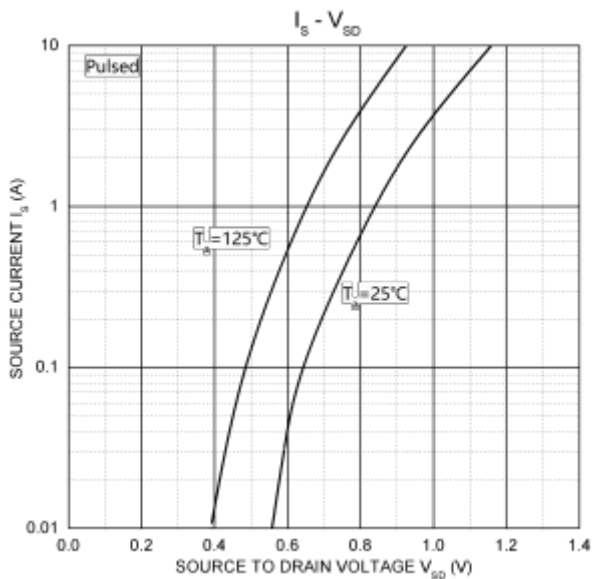
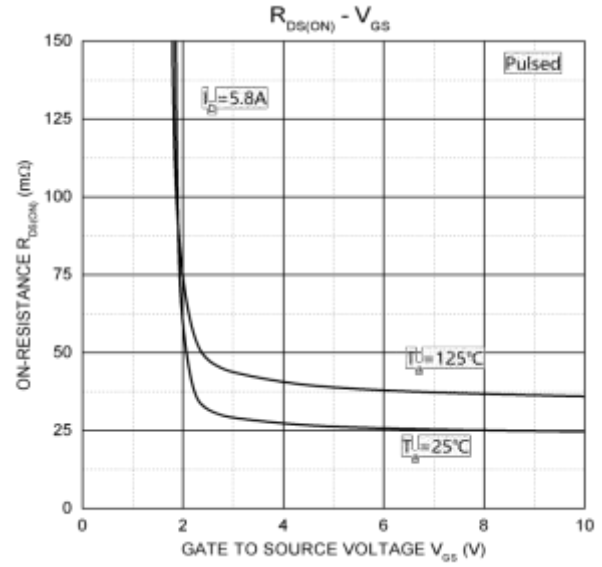
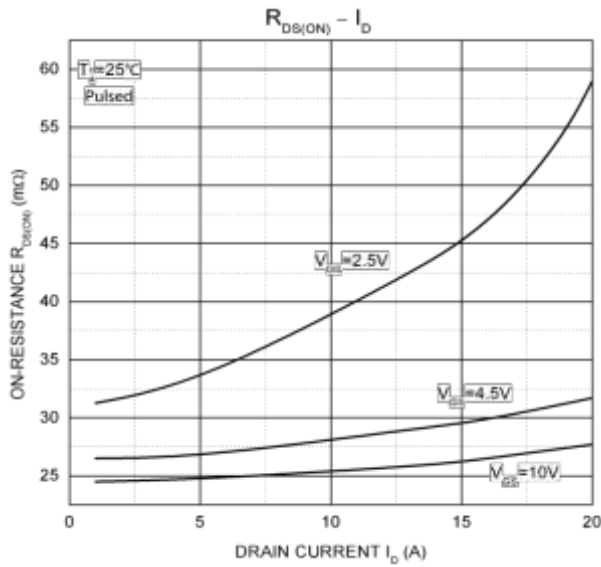
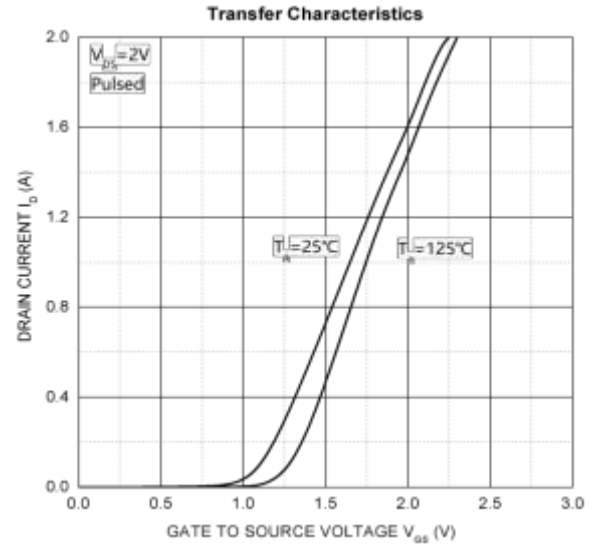
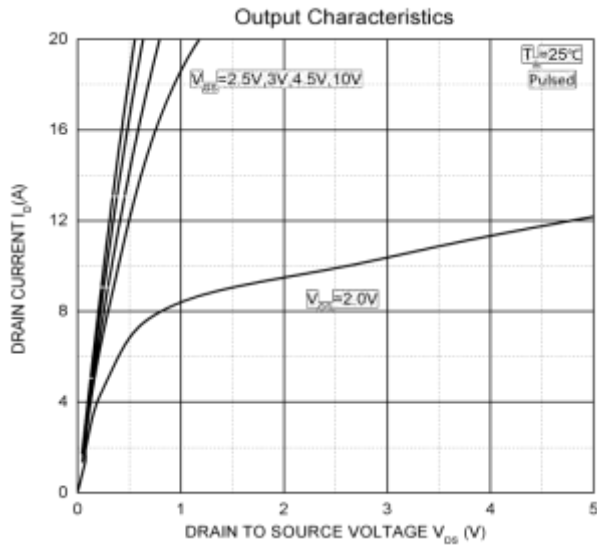
**Electrical Characteristics ( T<sub>A</sub> = 25°C unless otherwise noted )**

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	30			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 24V, V <sub>GS</sub> = 0V			1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±12V, V <sub>DS</sub> = 0V			±0.1	μA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	0.7		1.4	V
Drain-source on-resistance <sup>3)</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 5.8A		27	35	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 5A		30	40	
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 4A		40	50	
<b>Dynamic characteristics<sup>4)</sup></b>						
Input Capacitance	C <sub>ISS</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V, f = 1MHz			1050	pF
Output Capacitance	C <sub>OSS</sub>			99		
Reverse Transfer Capacitance	C <sub>RSS</sub>			77		
Gate resistance	R <sub>G</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz			3.6	Ω
<b>Switching Characteristics<sup>4)</sup></b>						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>GS</sub> = 10V, V <sub>DS</sub> = 15V, R <sub>L</sub> = 2.7Ω, R <sub>GEN</sub> = 3Ω			5	ns
Turn-on rise time	t <sub>r</sub>				7	
Turn-off delay time	t <sub>d(off)</sub>				40	
Turn-off fall time	t <sub>f</sub>				6	
<b>Source-Drain Diode characteristics</b>						
Diode Forward voltage <sup>3)</sup>	V <sub>DS</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = 1A		0.7	1.3	V

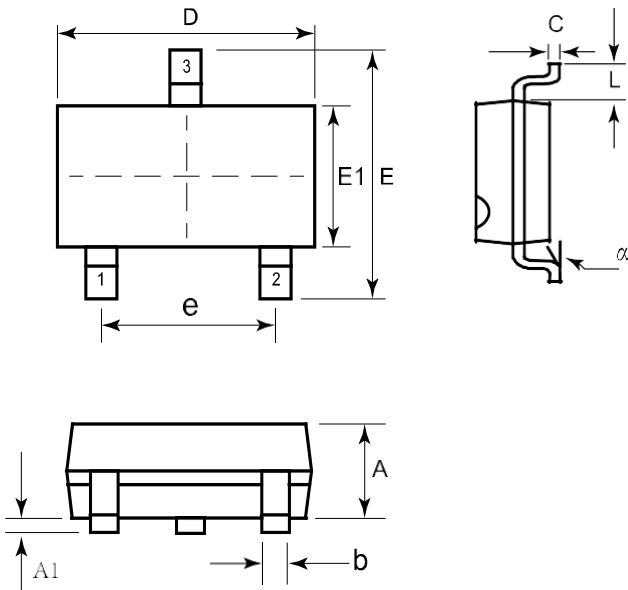
**Notes:**

- 1) Repetitive Rating : Pulse width limited by maximum junction temperature.
- 2) Surface Mounted on FR4 Board, t < 5 sec.
- 3) Pulse Test : Pulse Width ≤ 300 μ.s, Duty Cycle ≤ 2%.
- 4) Guaranteed by design, not subject to production testing.

**Typical Characteristics**

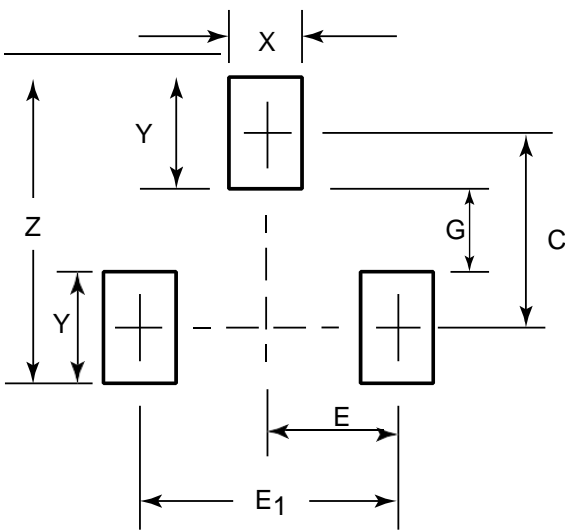


**SOT-23 Package Outline Drawing**



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		
$\alpha$	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