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.

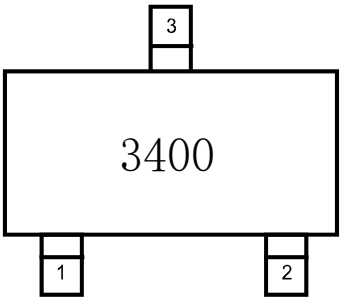
Applications

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

Features

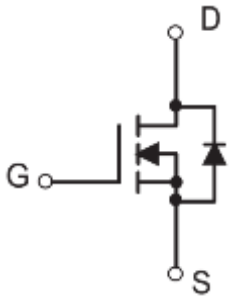
- Trench Power MOSFET
- Excellent $R_{DS(on)}$ and Low Gate Charge

Marking Information

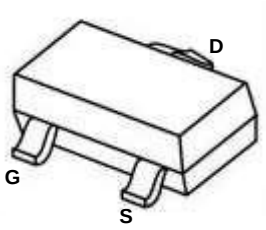


Device Marking Code

Dimensions and Pin Configuration



Circuit diagram



SOT-23

MOSFET Product Summary

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

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

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

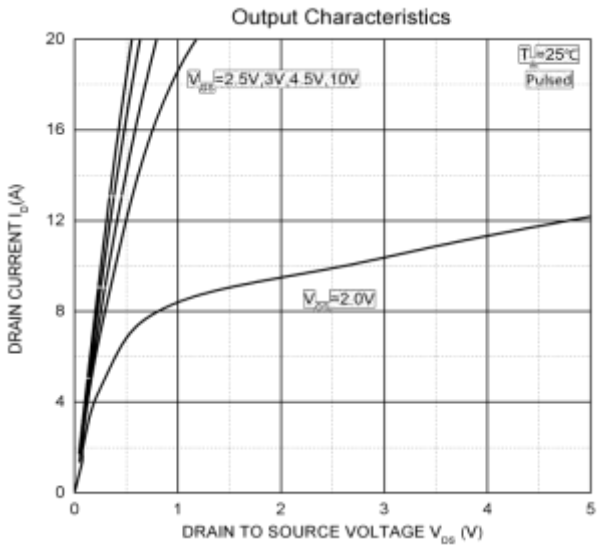
Electrical Characteristics (T_A = 25°C unless otherwise noted)

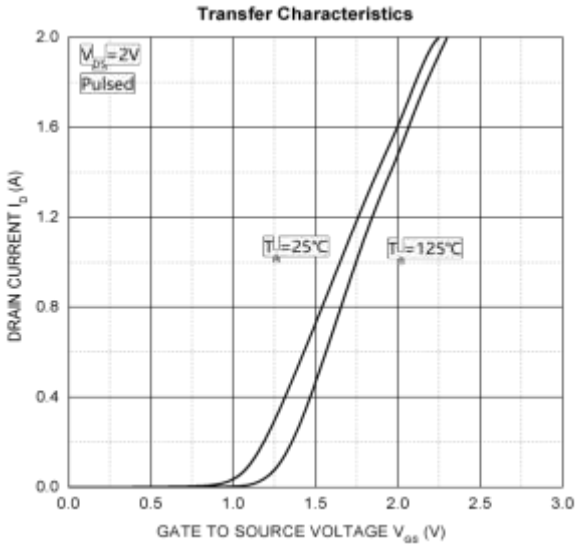
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =24V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±12V, V_{DS} = 0V			±0.1	μA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.7		1.4	V
Drain-source on-resistance[3]	$R_{DS(on)}$	V_{GS} =10V, I_D =5.8A		27	35	mΩ
		V_{GS} =4.5V, I_D =5A		30	40	
		V_{GS} =2.5V, I_D =4A		40	50	
Dynamic characteristics[4]						
Input Capacitance	C_{ISS}	V_{DS} =15V,V_{GS} =0V,f =1MHz			1050	pF
Output Capacitance	C_{OSS}			99		
Reverse Transfer Capacitance	C_{RSS}			77		
Gate resistance	R_G	V_{DS} =0V,V_{GS} =0V, f =1MHz			3.6	Ω
Switching Characteristics[4]						
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V,V_{DS}=15V, R_L=2.7Ω,R_{GEN}=3Ω			5	ns
Turn-on rise time	t_r				7	
Turn-off delay time	$t_{d(off)}$				40	
Turn-off fall time	t_f				6	
Source-Drain Diode characteristics						
Diode Forward voltage[3]	V_{DS}	V_{GS} =0V, I_S=1A		0.7	1.3	V

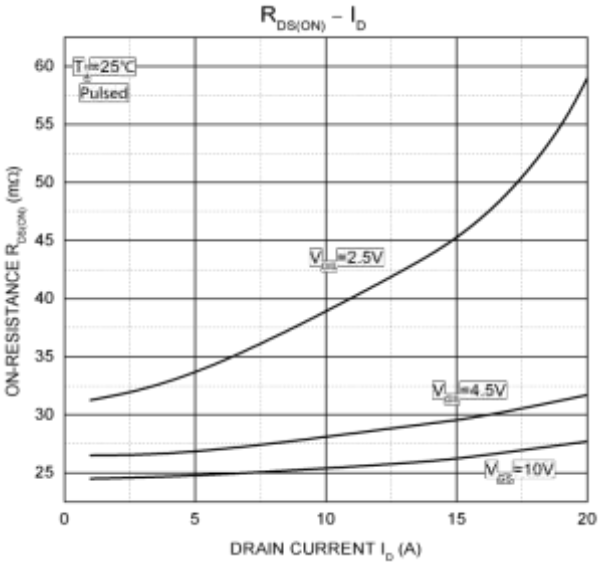
Notes:

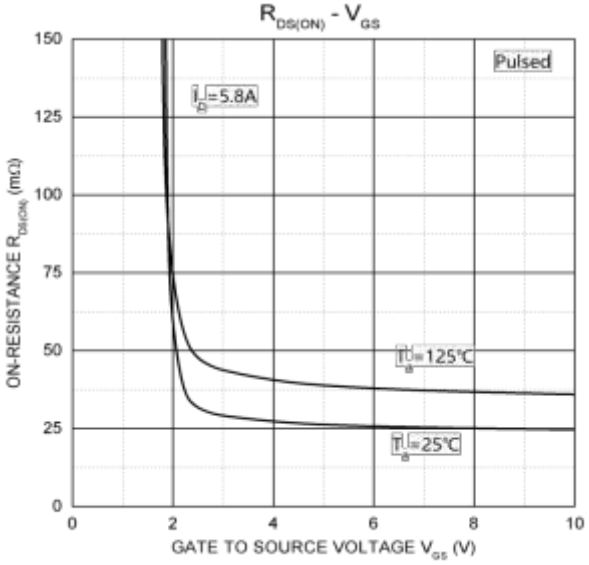
1) Repetitive Rating : Pulse width limited by maximum junction temperature.
2) Surface Mounted on FR4 Board, t < 5 sec.
3) Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.
4) Guaranteed by design, not subject to production testing.

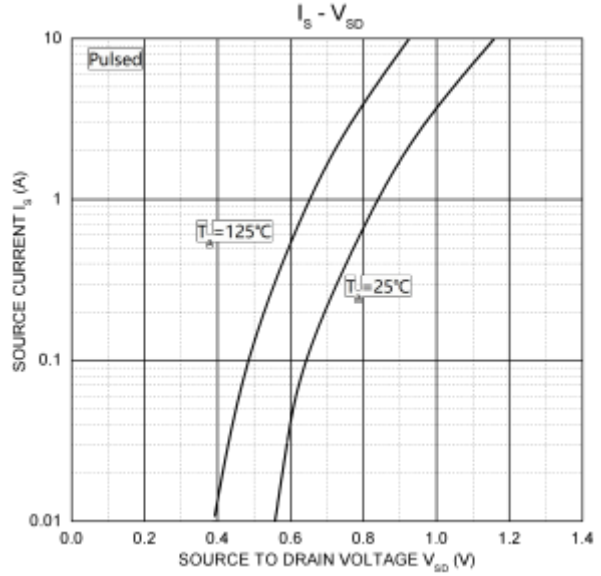
Typical Characteristics

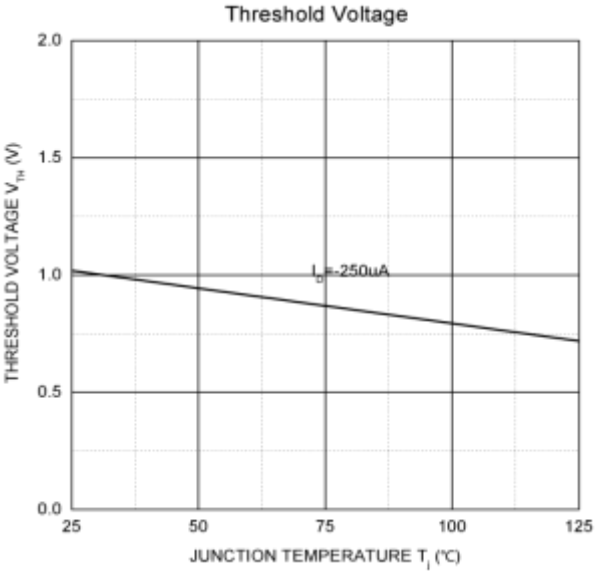




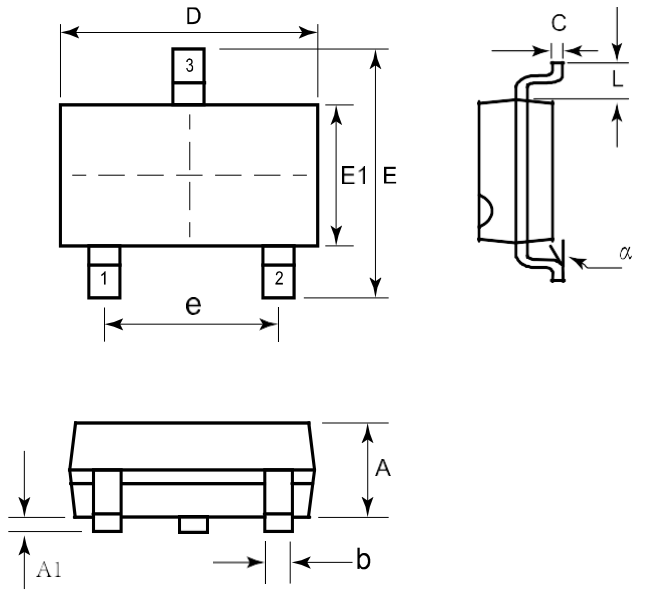






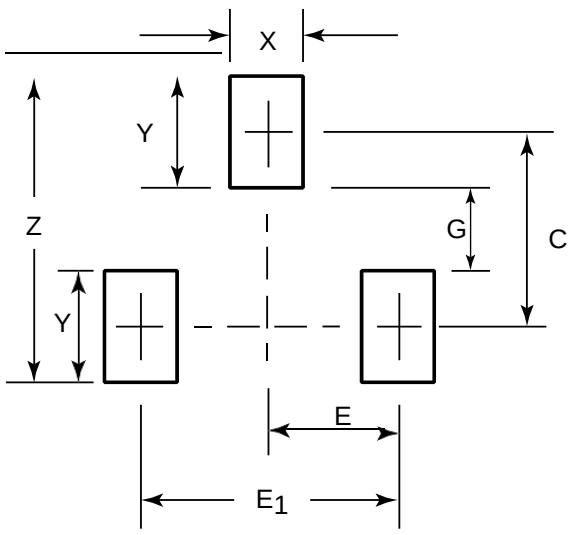


SOT-23 Package Outline Drawing



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		
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