

## Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
30V	28mΩ@10V	5.8A
	42mΩ@4.5V	

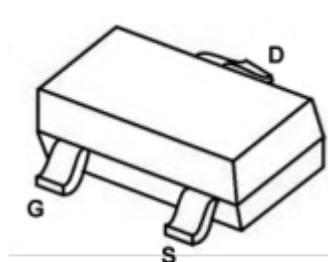
## Feature

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

## Application

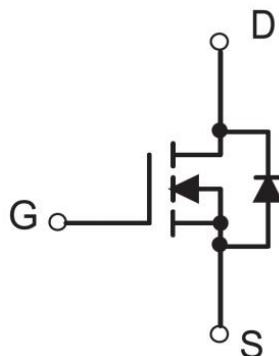
- DC/DC Converter
- Load Switch for Portable Devices
- Battery Switch

## Package

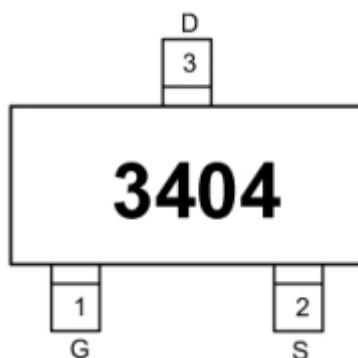


**SOT-23**

## Circuit diagram



## Marking



## Absolute maximum ratings

( $T_a=25^{\circ}\text{C}$  unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	5.8	A
Pulsed Drain Current	$I_{DM}$	30	A
Power Dissipation <sup>1)</sup>	$P_D$	0.72	W
Power Dissipation <sup>2)</sup>	$P_D$	1.4	W
Thermal Resistance from Junction to Ambient <sup>1)</sup>	$R_{\theta JA}$	173	$^{\circ}\text{C/W}$
Thermal Resistance from Junction to Ambient <sup>2)</sup>	$R_{\theta JA}$	90	$^{\circ}\text{C/W}$
Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^{\circ}\text{C}$

## Electrical characteristics

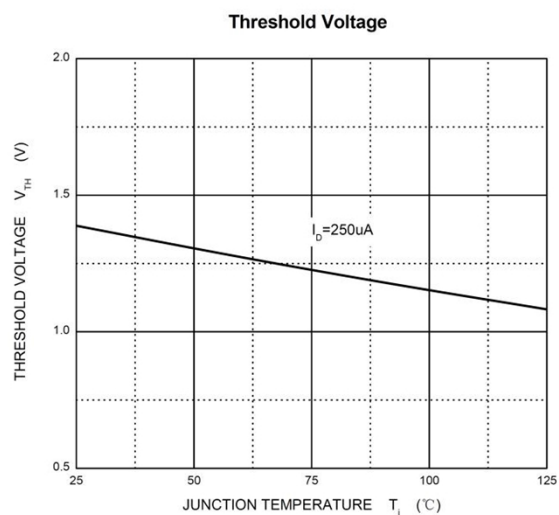
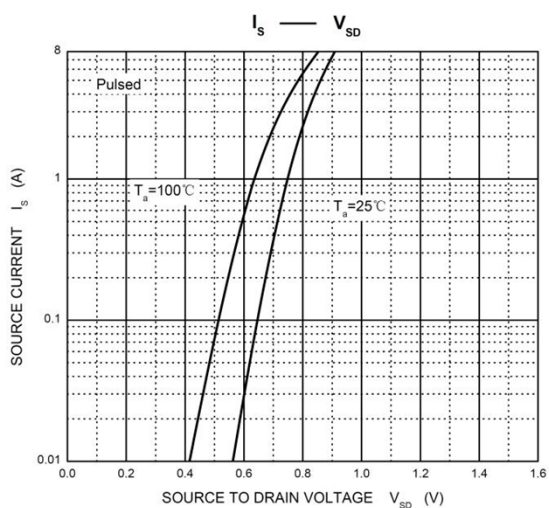
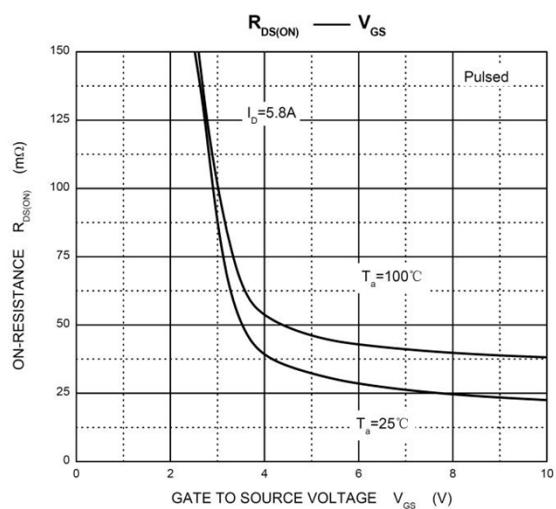
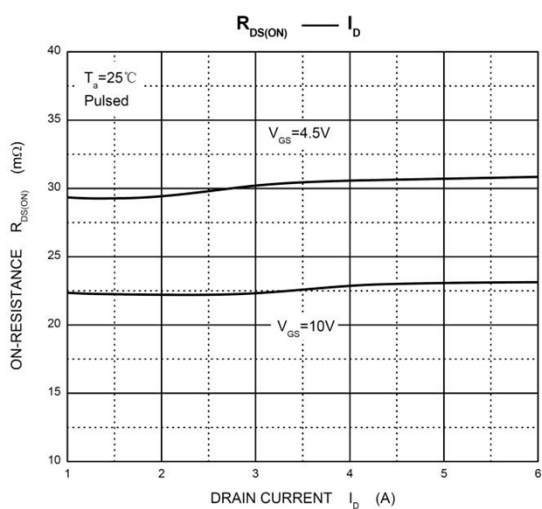
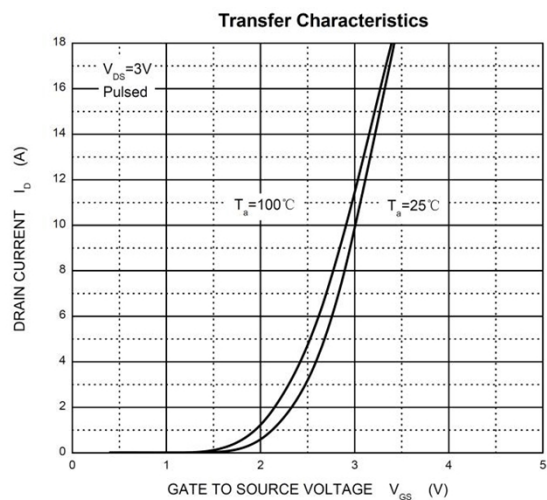
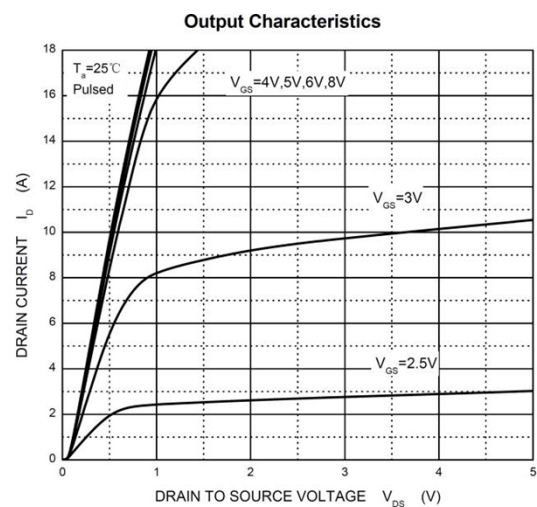
( $T_A=25^{\circ}\text{C}$ , unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV (BR)DSS	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> =30V, V <sub>GS</sub> = 0V			1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> = 0V			±100	μA
Gate threshold voltage <sup>(1)</sup>	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1	1.5	3	V
Drain-source on-resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =4A		23	28	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =3A		28	42	
Forward transconductance	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =4A		7		S
Dynamic Characteristics <sup>4)</sup>						
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1MHz		420	582	pF
Output capacitance	C <sub>oss</sub>			60	87	
Reverse transfer capacitance	C <sub>rss</sub>			53	71	
Total gate charge	Q <sub>g</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =3A		5	6.9	nC
Gate-source charge	Q <sub>gs</sub>			1.1	2.2	
Gate-drain charge	Q <sub>gd</sub>			2.6	2.8	
Turn-on Delay Time	T <sub>d(on)</sub>	V <sub>DD</sub> =15V, V <sub>GEN</sub> =10V , I <sub>D</sub> =4A, R <sub>GEN</sub> =3.3Ω		2	4	nS
Turn-on Rise Time	T <sub>r</sub>			34.4	62	
Turn-Off Delay Time	T <sub>d(off)</sub>			13.2	26	
Turn-Off Fall Time	t <sub>f</sub>			4.8	9.6	
Source-Drain Diode characteristics						
Diode Forward voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =1A			1.2	V

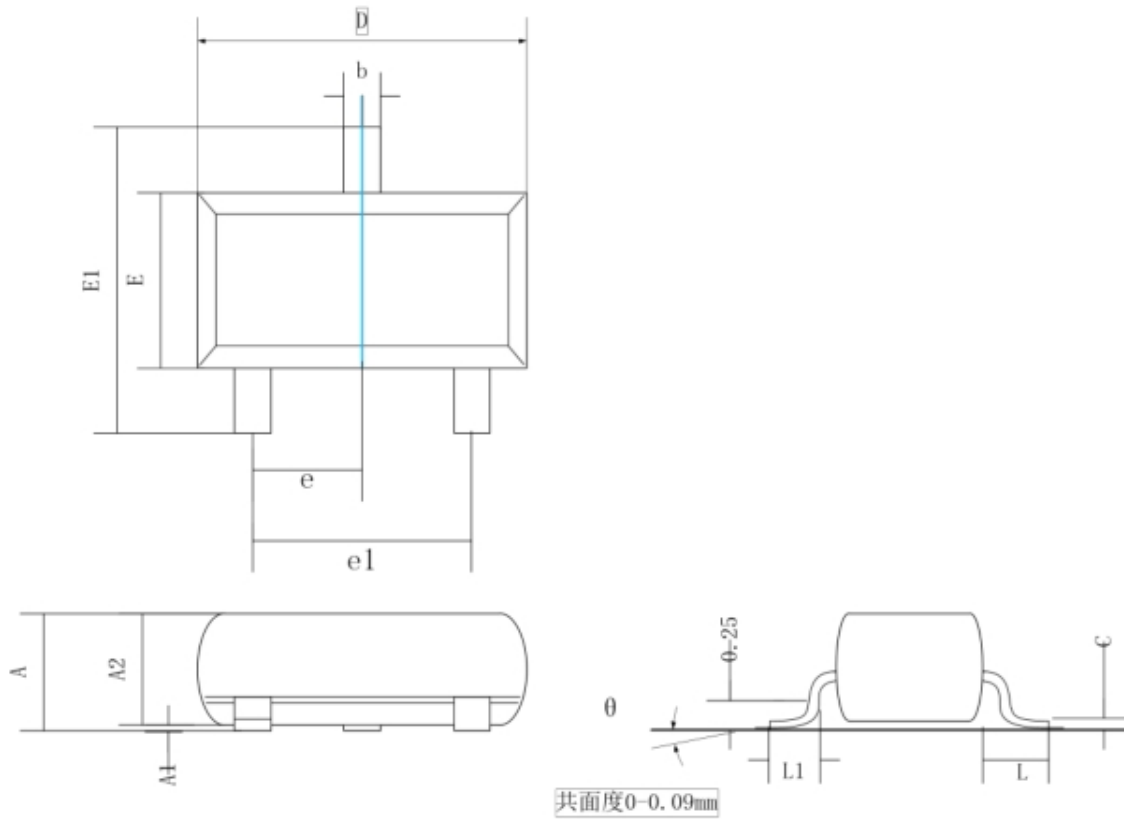
### Note:

1. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
2. Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate.

## Typical Characteristics



## SOT-23 Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.90	1.15
A1	0.00	0.10
A2	0.90	1.05
b	0.30	0.50
c	0.08	0.15
D	2.80	3.00
E	1.20	1.40
E1	2.25	2.55
e	0.95 REF.	
e1	1.80	2.00
L	0.55 REF.	
L1	0.30	0.50
$\theta$	0°	8°