



#### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
20V	17m $\Omega$ @4.5V	6A
	20m $\Omega$ @2.5V	
	30m $\Omega$ @1.8V	

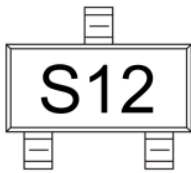
#### Feature

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

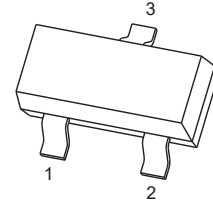
#### Application

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

#### MARKING:

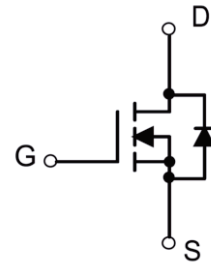


#### SOT-23



1. GATE
2. SOURCE
3. DRAIN

#### Schematic diagram



#### ABSOLUTE MAXIMUM RATINGS ( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 8$	V
Continuous Drain Current	$I_D$	6	A
Pulsed Drain Current ( $t=300\mu\text{s}$ )	$I_{DM}$	20	A
Continuous Source-Drain Diode Current	$I_S$	1.04	A
Power Dissipation	$P_D$	1.4	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	90	$^{\circ}\text{C/W}$
Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55~ +150	$^{\circ}\text{C}$

**MOSFET ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)**

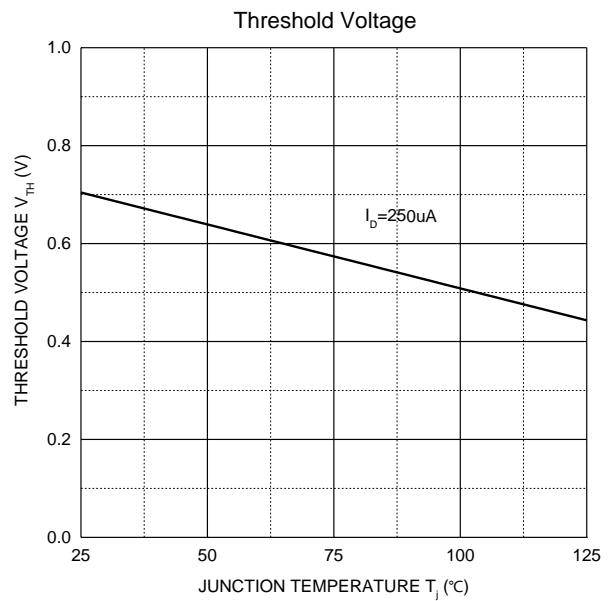
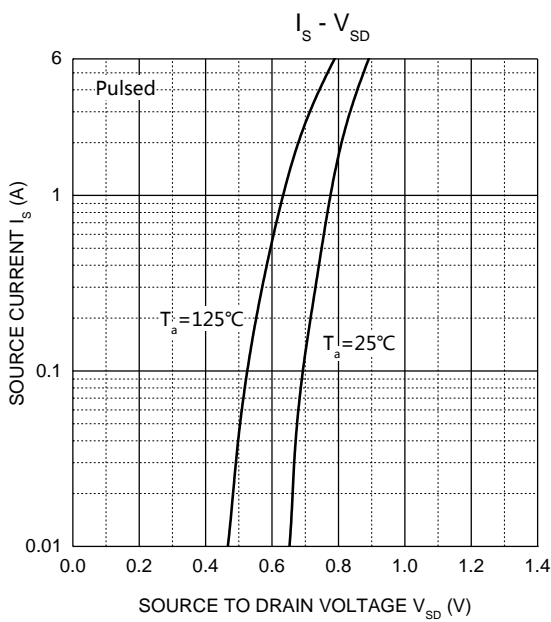
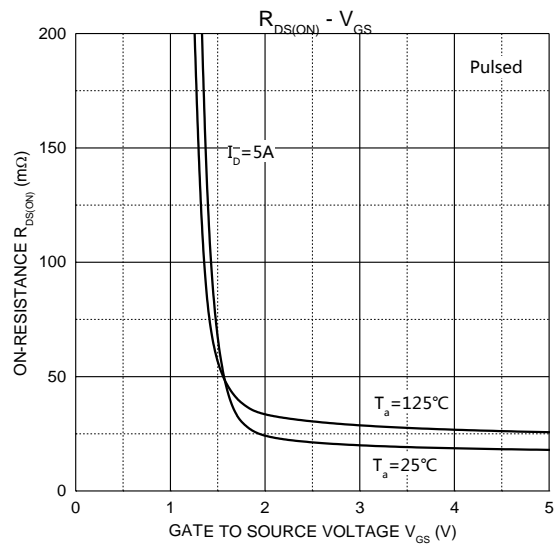
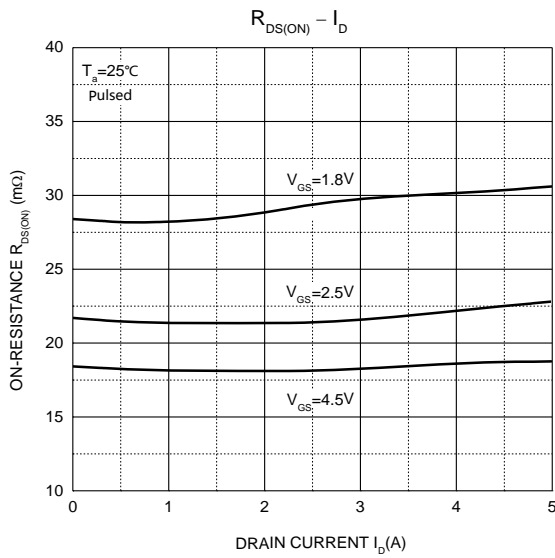
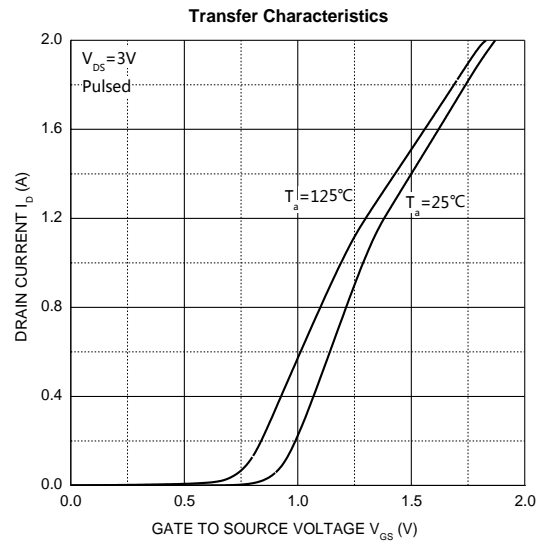
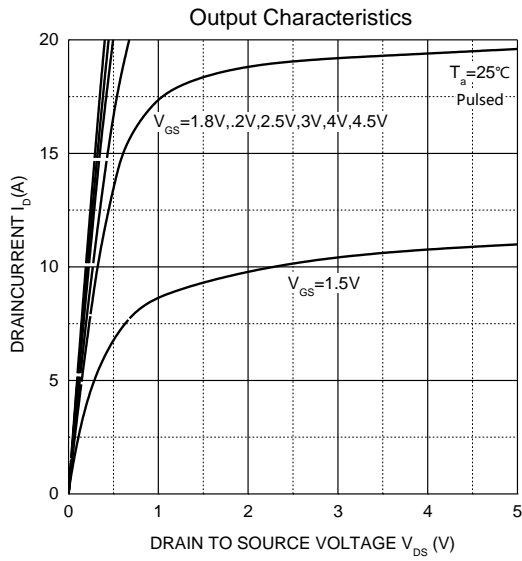
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	20			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V			1	μA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±8V, V <sub>DS</sub> = 0V			±0.1	μA
<b>On Characteristics</b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	0.4	0.7	1.0	V
Drain-Source On-Resistance <sup>a</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 5.0A		17	32	mΩ
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 4.7A		20	36	
		V <sub>GS</sub> = 1.8V, I <sub>D</sub> = 4.3A		30	42	
Forward Transconductance <sup>a</sup>	g <sub>FS</sub>	V <sub>DS</sub> = 10V, I <sub>D</sub> = 5A	6			S
<b>Dynamic Characteristics<sup>b</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0V, f = 1MHz		536	1000	pF
Output Capacitance	C <sub>oss</sub>			112		
Reverse Transfer Capacitance	C <sub>rss</sub>			104		
Gate Resistance	R <sub>g</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz	0.5		4.8	Ω
<b>Switching Characteristics<sup>b</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 5A		9.1	18	nC
Gate-Source Charge	Q <sub>gs</sub>			0.8		
Gate-Drain Charge	Q <sub>gd</sub>			3.3		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 10V, V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 3A, R <sub>G</sub> = 3Ω		7		ns
Turn-On Rise Time	t <sub>r</sub>			17		
Turn-Off Delay Time	t <sub>d(off)</sub>			26		
Turn-Off Fall Time	t <sub>f</sub>			9		
<b>Source-Drain Diode Characteristics</b>						
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = 4A		0.75	1.2	V

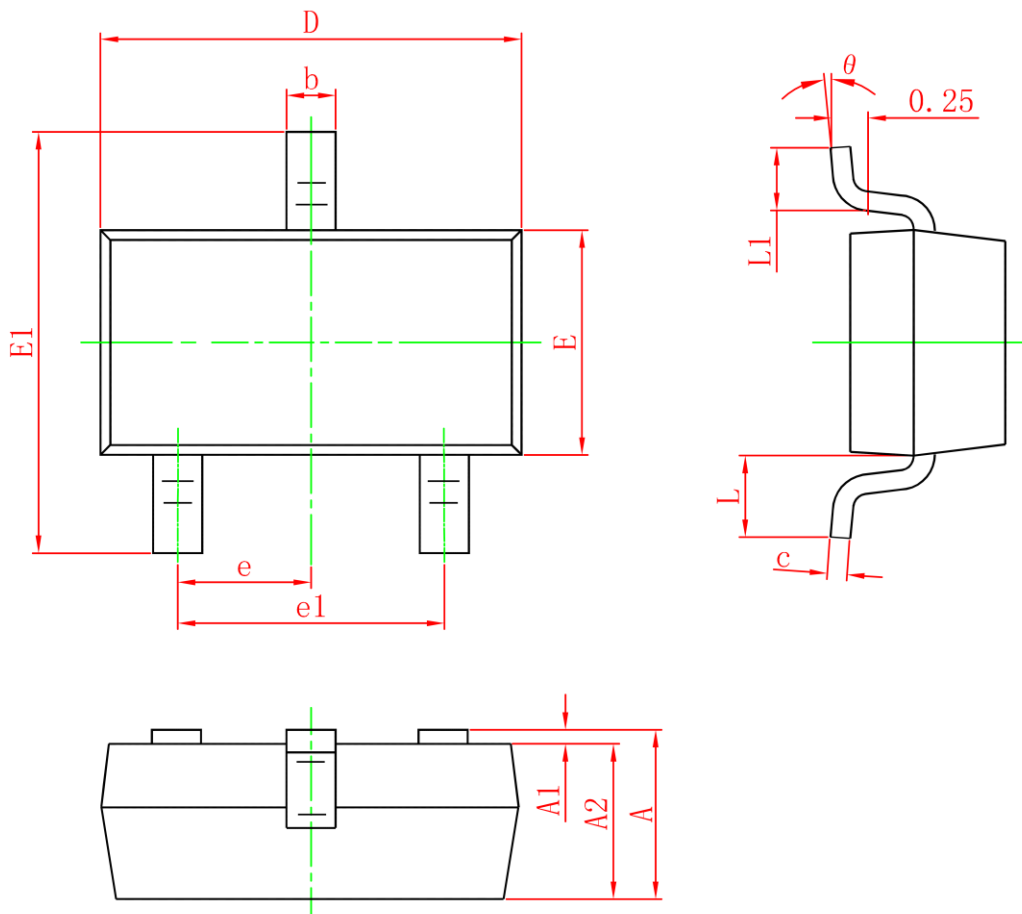
Notes :

a. Pulse Test : pulse width ≤300μs, duty cycle ≤2%.

b. These parameters have no way to verify.

**Typical Electrical and Thermal Characteristics**



**SOT-23 Package Information**


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.300	0.035	0.051
A1	0	0.100	0	0.004
A2	0.900	1.200	0.035	0.047
b	0.300	0.550	0.012	0.022
c	0.080	0.158	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.150	1.500	0.045	0.059
E1	2.200	2.700	0.087	0.106
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
$\theta$	0°	8°	0°	8°

**Attention:**

- GreenPower Electronics reserves the right to improve product design function and reliability without notice.
- Any and all semiconductor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.
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