

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	170mΩ@-4.5V	0.75A
	230mΩ@-2.5V	
	330mΩ@-1.8V	

Feature

- Trench Technology Power MOSFET
- Low $R_{DS(on)}$
- Low Gate Charge
- ESD Protected

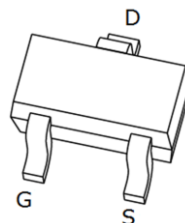
Application

- Load Switch
- DC/DC Converter

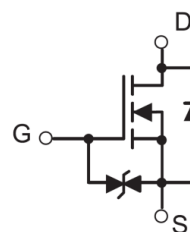
MARKING:



SOT-523



Schematic diagram



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

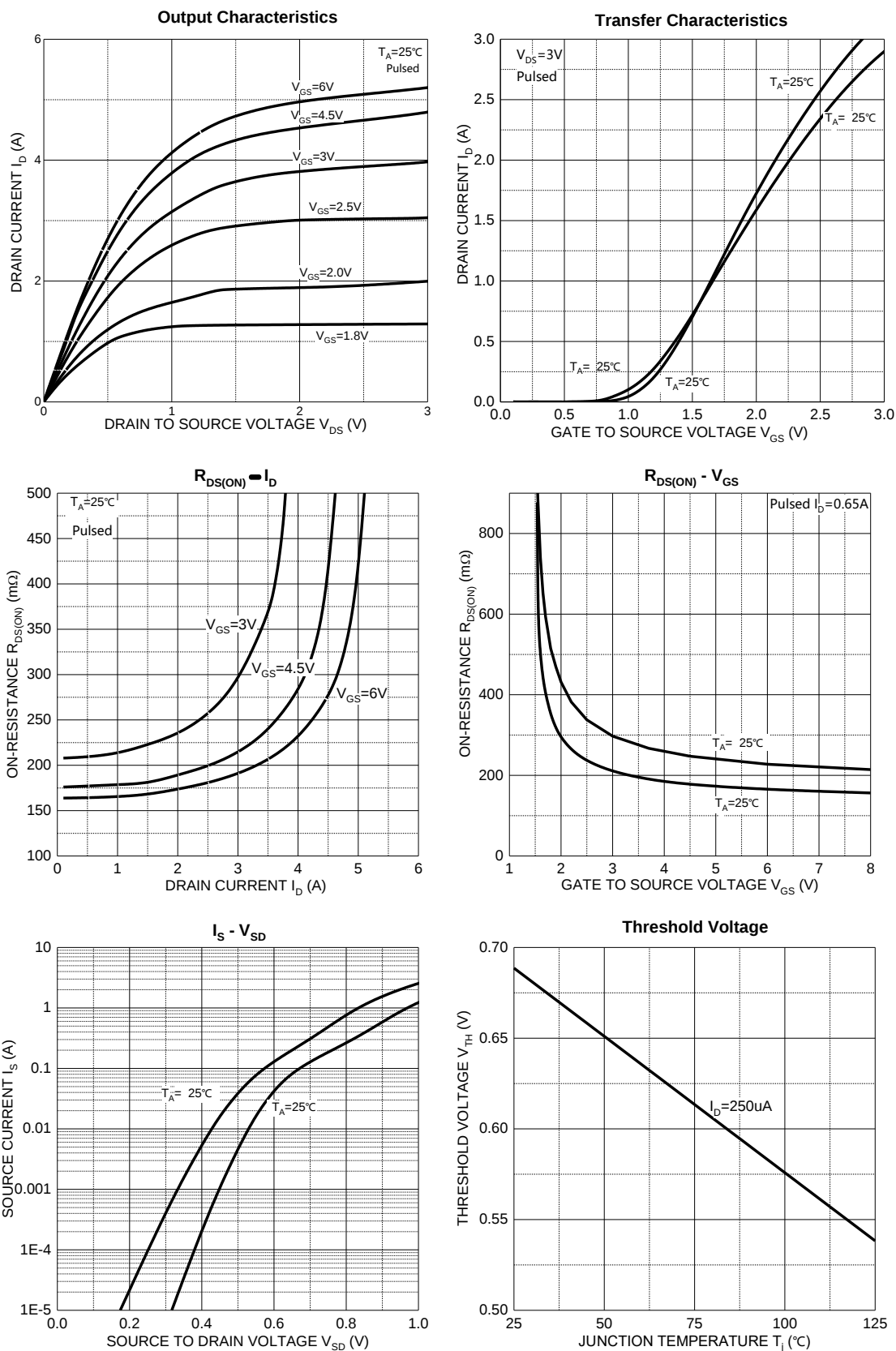
Parameter	Symbol	Value	Unit
Drain - Source Voltage	V_{DS}	20	V
Gate - Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ^{1,5}	I_D	0.75	A
Pulsed Drain Current ²	I_{DM}	3.0	A
Power Dissipation ^{4,5}	P_D	150	mW
Thermal Resistance from Junction to Ambient ⁵	$R_{\theta JA}$	833	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

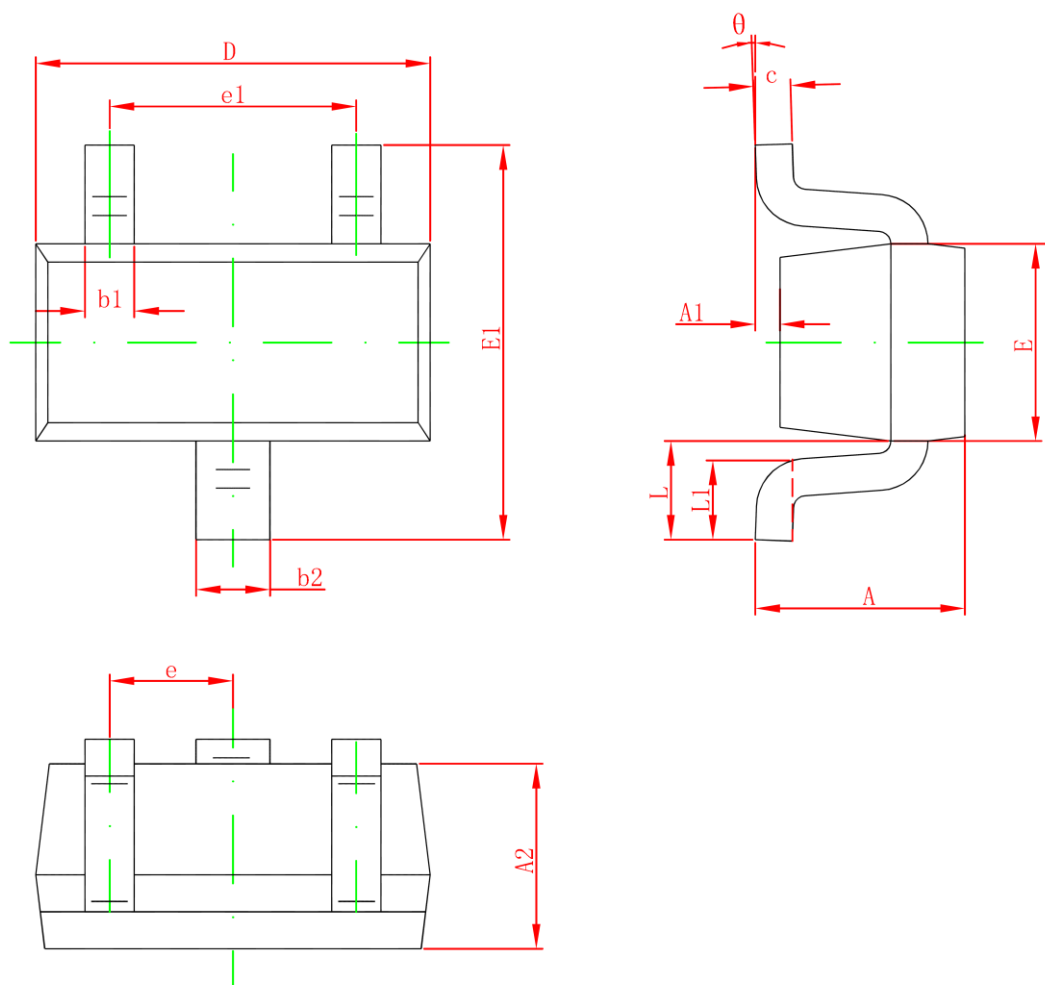
MOSFET ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 20V, V _{GS} = 0V			1	μA
Gate - Body Leakage Current	I _{GSS}	V _{GS} = ±10V, V _{DS} = 0V			±10	μA
On Characteristics ³						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.4	0.7	1	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 0.65A		170	380	Ω
		V _{GS} = 2.5V, I _D = 0.55A		230	450	
		V _{GS} = 1.8V, I _D =0.45A		330	590	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 10V, f = 1MHz		55.6		pF
Output Capacitance	C _{oss}			15.2		
Reverse Transfer Capacitance	C _{rss}			10.3		
Switching Characteristics						
Total Gate Charge	Q _g	V _{DD} = 10V, V _{GS} = 4.5V, I _D =0.65A		0.78		nC
Gate-Source Charge	Q _{gs}			0.23		
Gate-Drain Charge	Q _{gd}			0.01		
Turn-On Delay Time	t _{d(on)}	V _{DS} = 10V, V _{GS} = 4.5V I _D = 0.5A, R _{GEN} =10Ω		6.7		ns
Turn-On Rise Time	t _r			4.8		
Turn-Off Delay Time	t _{d(off)}			17.3		
Turn-Off Fall Time	t _f			7.4		
Source - Drain Diode Characteristics						
Diode Forward Voltage ³	V _{SD}	V _{GS} = 0V, I _S = 0.15A			1.2	V

Notes :

- 1.The maximum current rating is limited by package.
- 2.Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
- 3.Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 4.The power dissipation P_D is limited by $T_{J(MAX)} = 150^\circ\text{C}$.
- 5.Device mounted on $1in^2$ FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

Typical Characteristics


SOT-523 Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.900	1.100	0.035	0.043
e1	0.500TYP		0.020TYP	
L	0.400REF		0.016REF	
L1	0.260	0.460	0.010	0.018
θ	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.
- GreenPower Electronics products belong to consumer electronics or other civilian electronic products.