

Product Summary

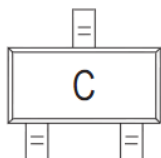
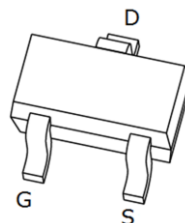
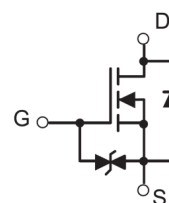
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	190mΩ@4.5V	750mA
	260mΩ@2.5V	

Feature

- High-Side Switching
- Low On-Resistance
- Low Threshold
- Fast Switching Speed
- ESD Protected

Application

- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories
- Battery Operated Systems
- Power Supply Converter Circuits
- Load/Power Switching Cell Phones, Pagers

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	
Continuous Drain Current	I_D	750	mA
Pulsed Drain Current ¹	I_{DM}	1000	
Power Dissipation ²	P_D	150	mW
Maximum Power Dissipation ³		275	
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	833	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~ +150	

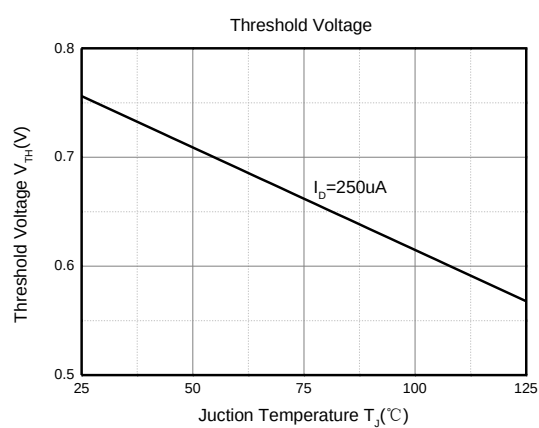
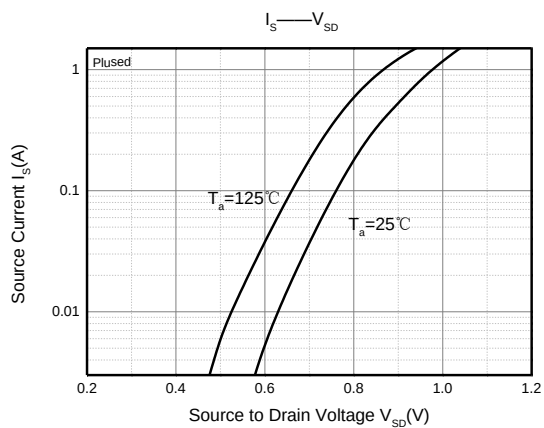
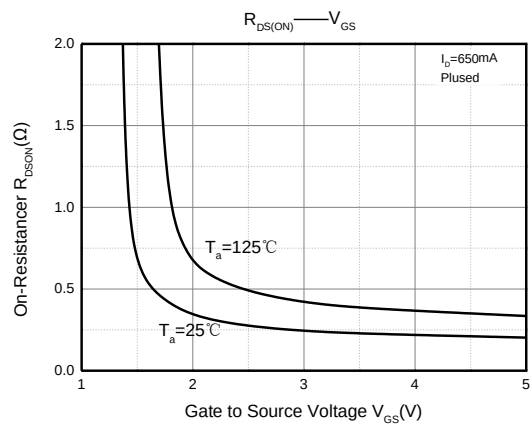
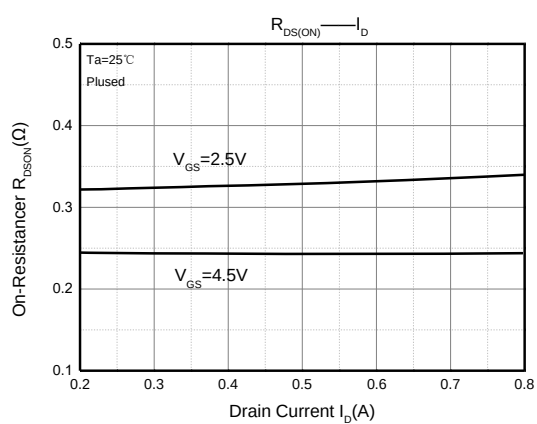
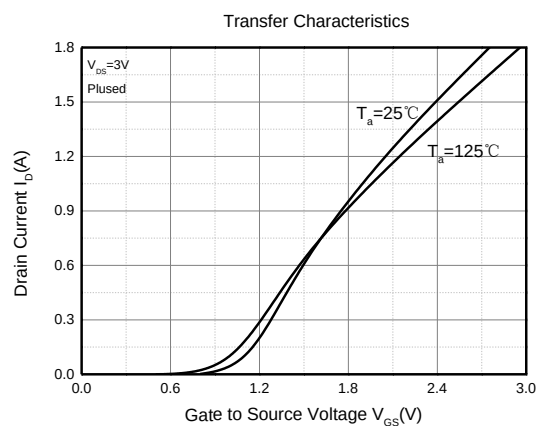
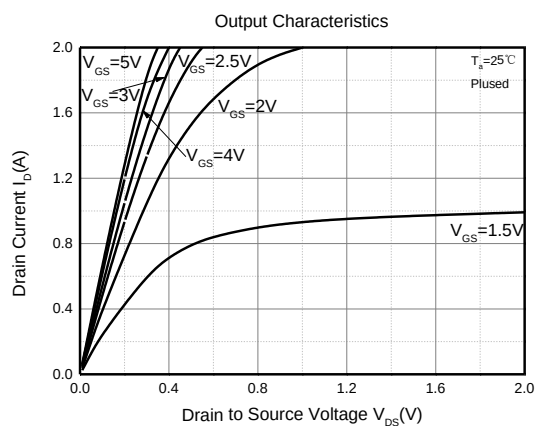
MOSFET ELECTRICAL CHARACTERISTICS($T_A=25^{\circ}\text{C}$ unless otherwise noted)

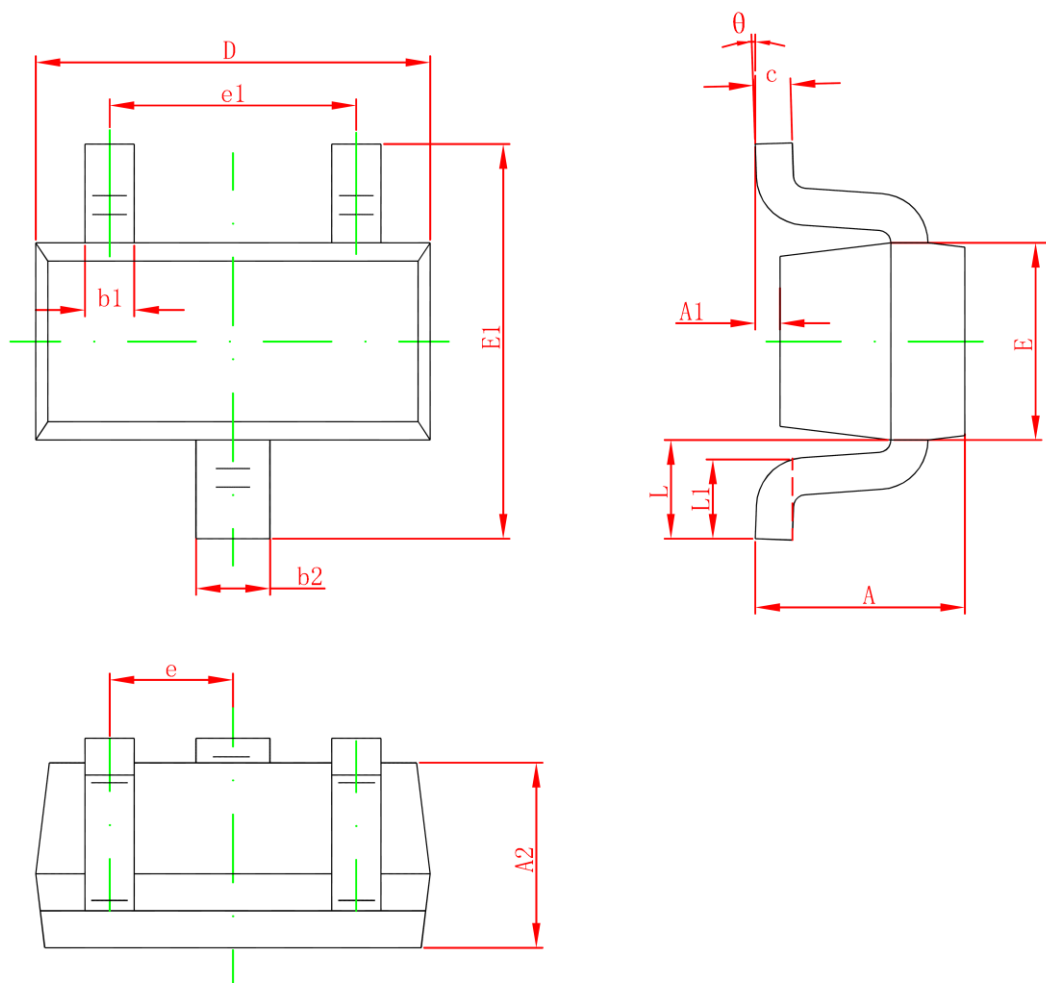
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =16V,V _{GS} = 0V			1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±4.5V, V _{DS} = 0V			±1	μA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.45	0.7	1.2	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =600mA		190	250	mΩ
		V _{GS} =2.5V, I _D =500mA		260	340	
Forward Tranconductance	g _{FS}	V _{DS} =10V, I _D =400mA	1			S
Dynamic Characteristics ⁴						
Input Capacitance	C _{iss}	V _{DS} =16V,V _{GS} =0V,f =1MHz			120	pF
Output Capacitance	C _{oss}				20	
Reverse Transfer Capacitance	C _{rss}				15	
Switching Characteristics ⁴						
Turn-On Delay Time	t _{d(on)}	V _{DD} =10V,I _D =500mA, V _{GS} =4.5V,R _G =10Ω		6.7		ns
Turn-On Rise Time	t _r			4.8		ns
Turn-Off Delay Time	t _{d(off)}			17.3		ns
Turn-Off Fall Time	t _f			7.4		ns
Source-Drain Diode Characteristics						
Diode Forward Voltage ⁵	V _{DS}	I _S =0.15A, V _{GS} = 0V			1.2	V

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. This test is performed with no heat sink at $T_A=25^{\circ}\text{C}$.
3. This test is performed with infinite heat sink at $T_c=25^{\circ}\text{C}$.
4. These parameters have no way to verify.
5. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$.

Typical Electrical and Thermal 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
e1	0.900	1.100	0.035	0.043
e	0.500TYP		0.020TYP	
L	0.400REF		0.016REF	
L1	0.100	0.460	0.004	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.