



#### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
60V	1.8Ω@10V	0.34A
	2.1Ω@4.5V	

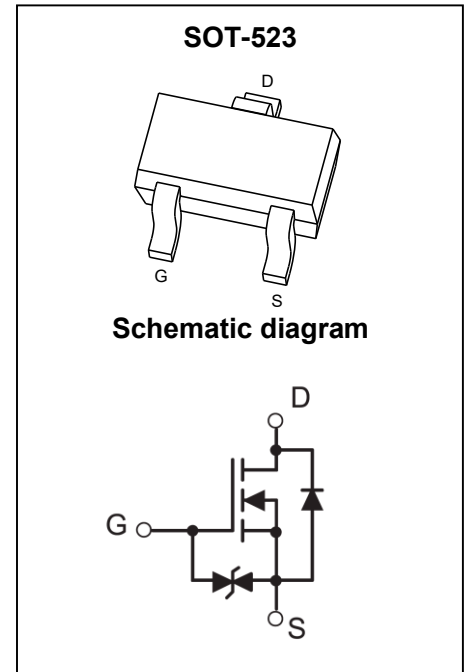
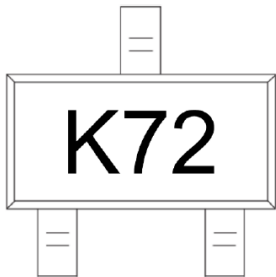
#### Feature

- Surface Mount Package
- High Density Cell Design for Extremely Low RDS(ON)
- Voltage Controlled Small Signal Switch
- Rugged and Reliable
- ESD Protcet

#### Application

- Small Servo Motor Controls
- Power MOSFET Gate Drivers
- Switching Application

#### MARKING:



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current <sup>1,2</sup>	$I_D$	0.34	A
Pulsed Drain Current ( $t_p=10\mu\text{s}$ )	$I_{DM}$	1.36	A
Power Dissipation	$P_D$	0.15	W
Thermal Resistance from Junction to Ambient <sup>1,2</sup>	$R_{\theta JA}$	833	$^\circ\text{C/W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~ +150	$^\circ\text{C}$

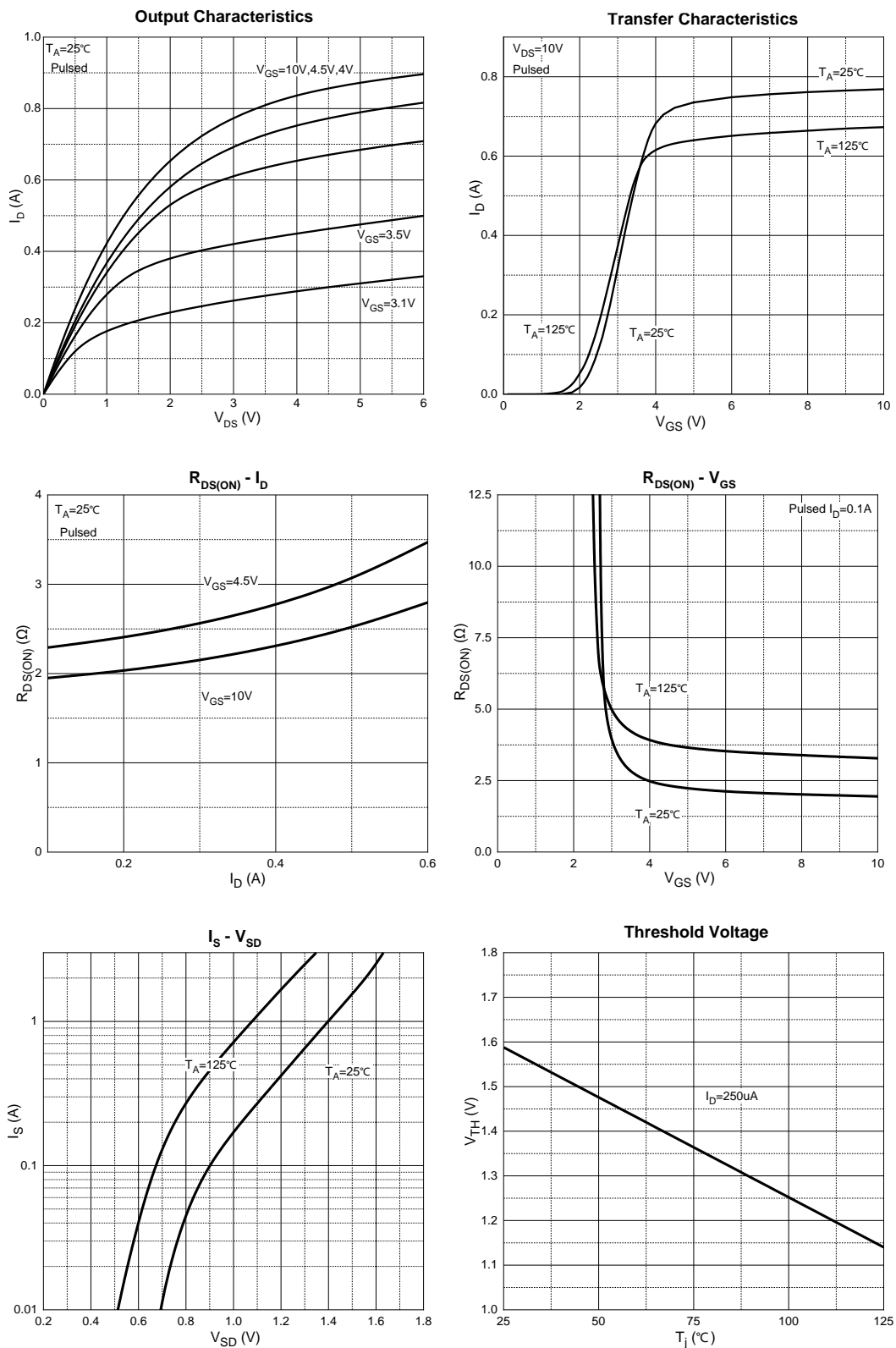
**MOSFET ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$  unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 48V, V_{GS} = 0V$			1	$\mu A$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 5$	$\mu A$
<b>On Characteristics<sup>3</sup></b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	1.4	1.8	V
Drain-Source on-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 0.3A$		1.8	2.5	$\Omega$
		$V_{GS} = 4.5V, I_D = 0.2A$		2.1	3.0	
Forward Transconductance	$g_{FS}$	$V_{DS} = 10V, I_D = 0.2A$	80			mS
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 30V, V_{GS} = 0V, f = 1MHz$		17.6		pF
Output Capacitance	$C_{oss}$			4.4		
Reverse Transfer Capacitance	$C_{rss}$			1.2		
<b>Switching Characteristics</b>						
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 30V, V_{GS} = 10V,$ $R_L = 100\Omega, R_G = 3\Omega$		3.8		ns
Turn-On Rise Time	$t_r$			2.9		
Turn-Off Delay Time	$t_{d(off)}$			14		
Turn-Off Fall Time	$t_f$			8		
Total Gate Charge	$Q_g$	$V_{DS} = 30V, I_D = 0.3A, V_{GS} = 10V$		1.6		nC
Gate-Source Charge	$Q_{gs}$			0.2		
Gate-Drain Charge	$Q_{gd}$			0.8		
<b>Diode Characteristics</b>						
Diode Forward Voltage <sup>3</sup>	$V_{SD}$	$I_S = 0.3A, V_{GS} = 0V$			1.2	V

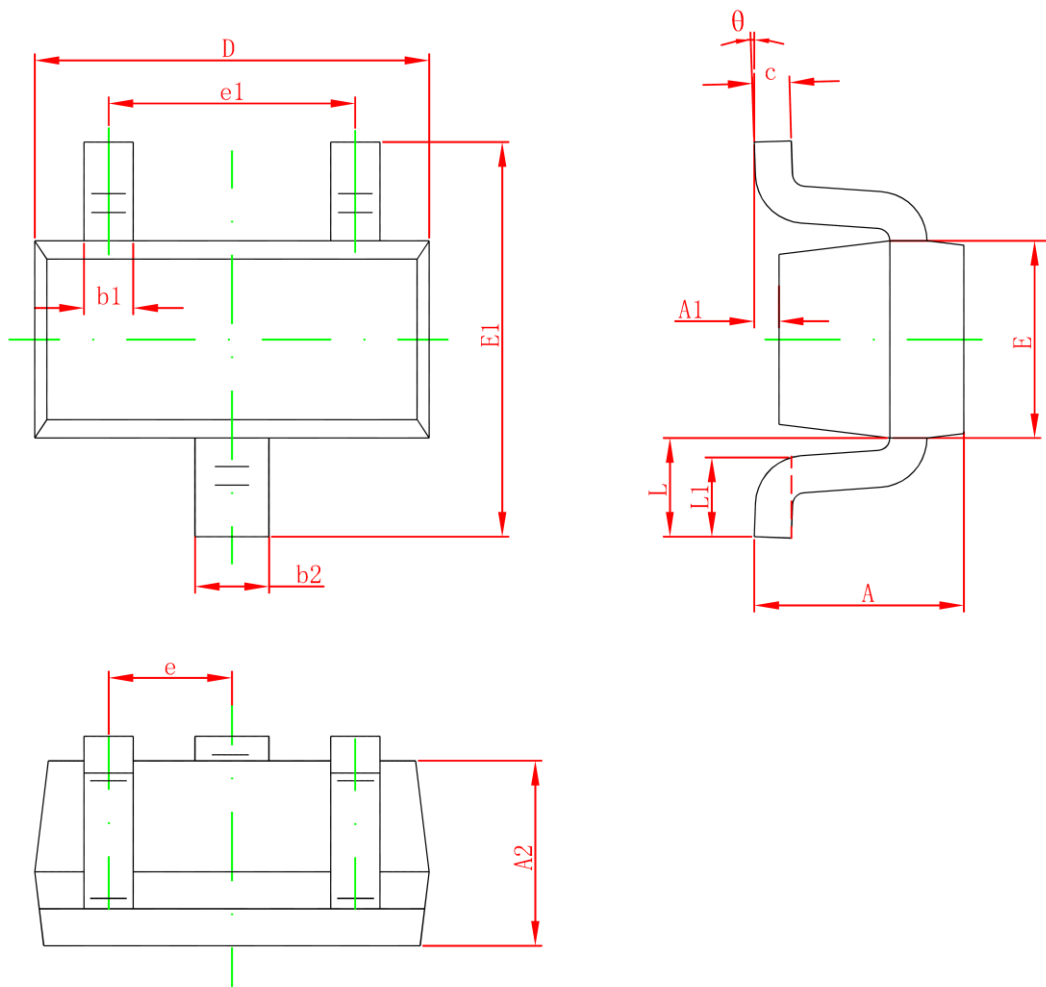
Notes :

1.  $R_{\theta JA}$  is measured with the device mounted on 1 in<sup>2</sup> FR4 board with 1oz. single side copper, in a still air environment with  $T_A = 25^\circ\text{C}$ .
2.  $R_{\theta JA}$  is measured in the steady state
3. Pulse test : Pulse width  $\leq 380\mu s$ , duty cycle  $\leq 2\%$ .

## 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
$\theta$	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.
- GreenPower Electronics products belong to consumer electronics or other civilian electronic products.