

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-20V	550mΩ@-4.5V	-0.7A
	700mΩ@-2.5V	

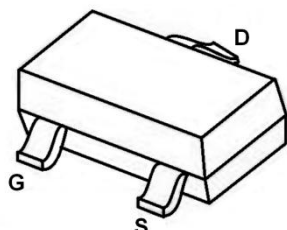
Feature

- High power and current handling capability
- Surface mount package
- ESD protection

Application

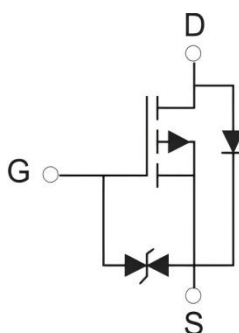
- Battery Switch
- DC/DC Converter

Package

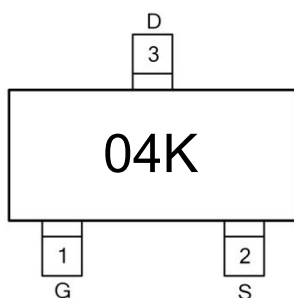


SOT-523

Circuit diagram



Marking



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	I_D	-0.7	A
Pulsed Drain Current	I_{DM}	-2.8	A
Power Dissipation	P_D	0.15	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	833	$^{\circ}\text{C/W}$
Operating Junction Temperature	T_J	$-55 \sim +150$	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	$-55 \sim +150$	$^{\circ}\text{C}$

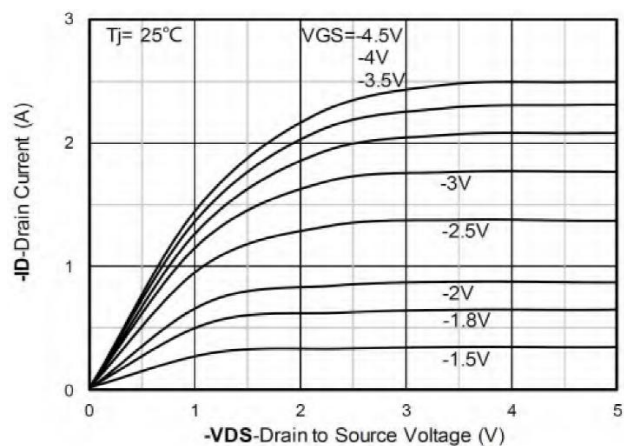
Electrical characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=-16V, V_{GS}=0V$			-1	μA
Gate-body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 12V$			± 10	μA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.35	-0.65	-1	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-0.5A$		400	550	m Ω
		$V_{GS}=-2.5V, I_D=-0.2A$		550	700	
Dynamic characteristics ¹⁾						
Input Capacitance	C_{iss}	$V_{DS}=-16V, V_{GS}=0V, f=1MHz$		113		pF
Output Capacitance	C_{oss}			15		
Reverse Transfer Capacitance	C_{rss}			9		
Total Gate Charge	Q_g	$V_{DS}=-10V, V_{GS}=-4.5V$ $I_D=-0.2A$		1.9		nC
Gate-Source Charge	Q_{gs}			0.4		
Gate-Drain Charge	Q_{gd}			0.31		
Turn-on delay time	$t_{d(on)}$	$V_{DS}=-10V, V_{GS}=-4.5V$ $I_D=-0.2A, R_G=10\Omega$		9		nS
Turn-on rise time	t_r			5.7		
Turn-off delay time	$t_{d(off)}$			32.6		
Turn-off fall time	t_f			20.3		
Source-Drain Diode characteristics						
Body-Diode Continuous Current	I_S				-0.7	A
Diode Forward voltage	V_{SD}	$V_{GS}=0V, I_S=-1A, T_J=25^{\circ}C$			-1.2	V

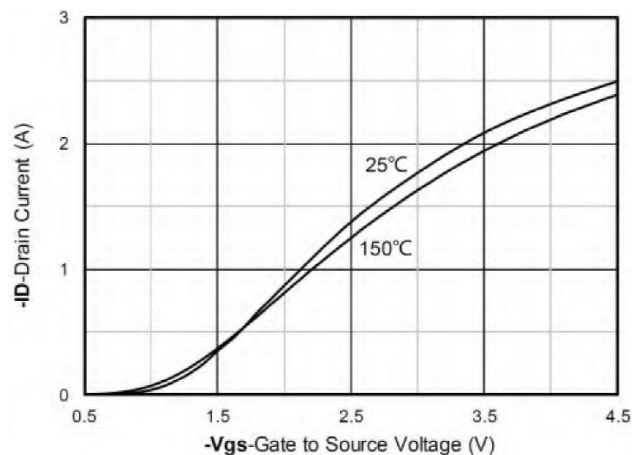
Notes:

1) Guaranteed by design, not subject to production testing.

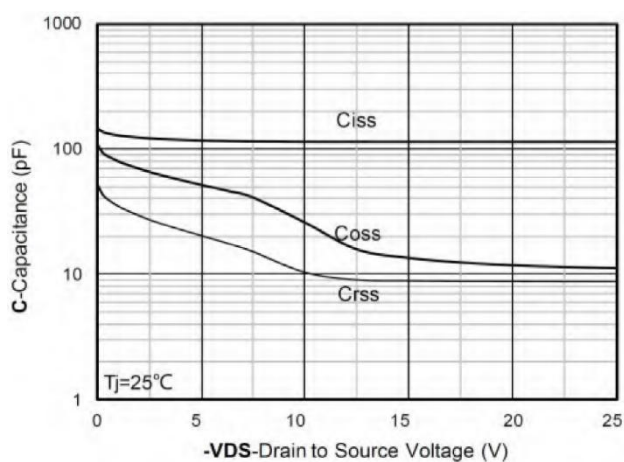
Typical Characteristics



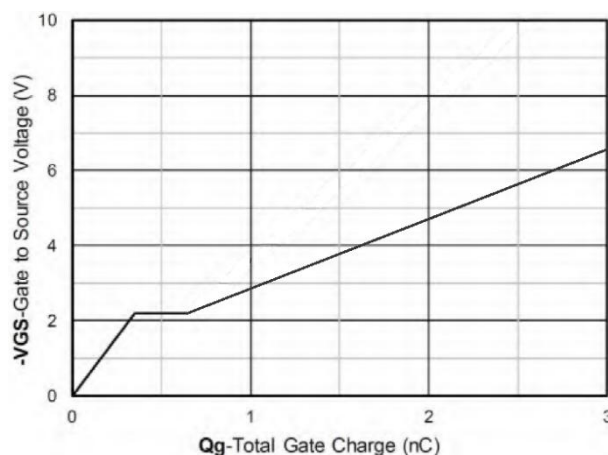
Output Characteristics



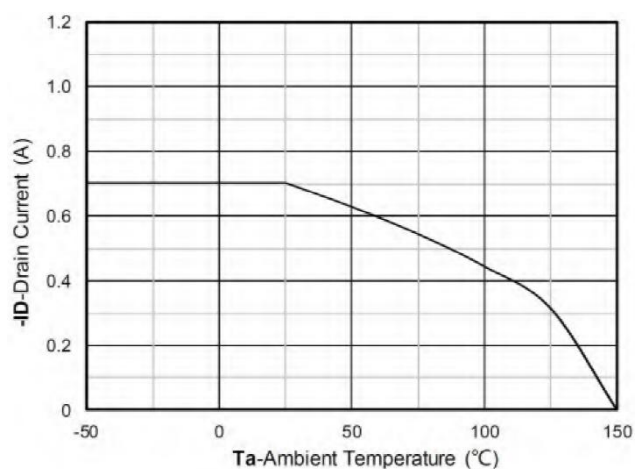
Transfer Characteristics



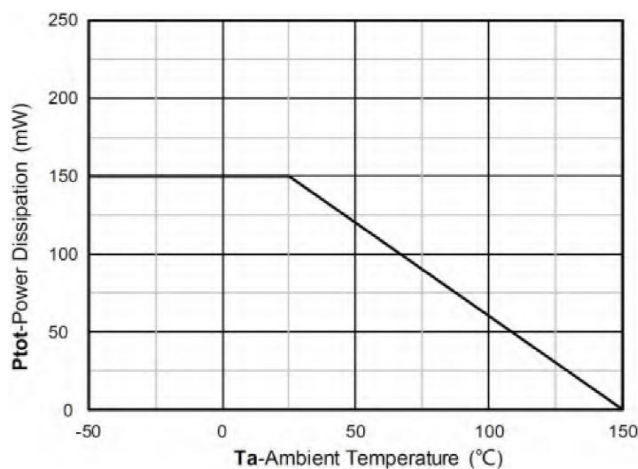
Capacitance Characteristics



Gate Charge

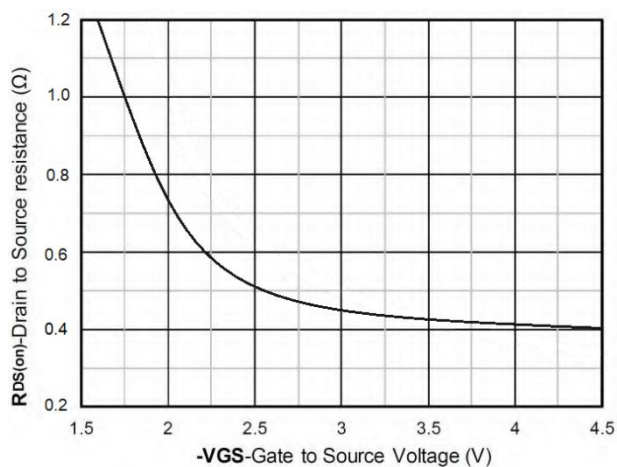


Current dissipation

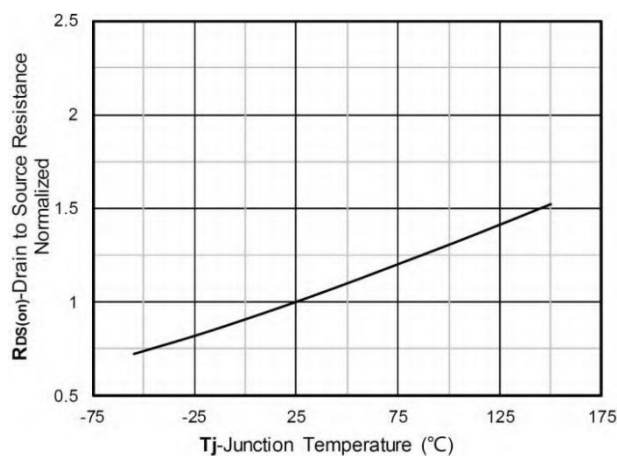


Power dissipation

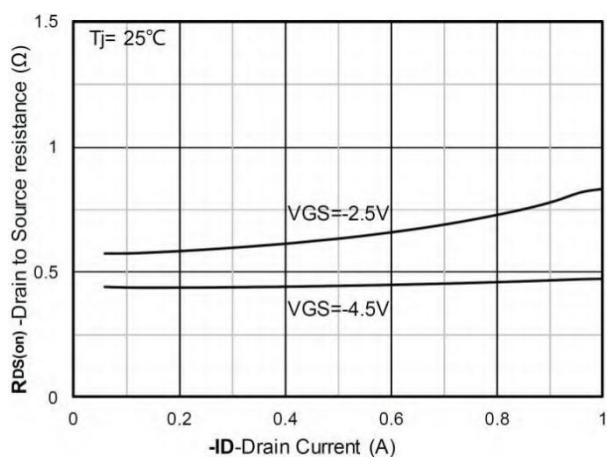
Typical Characteristics



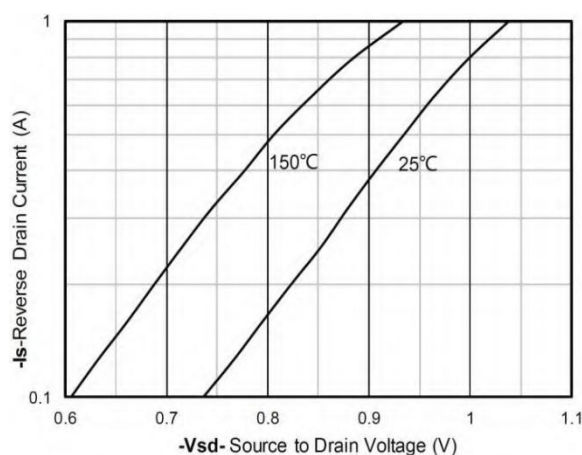
On-Resistance vs Gate to Source Voltage



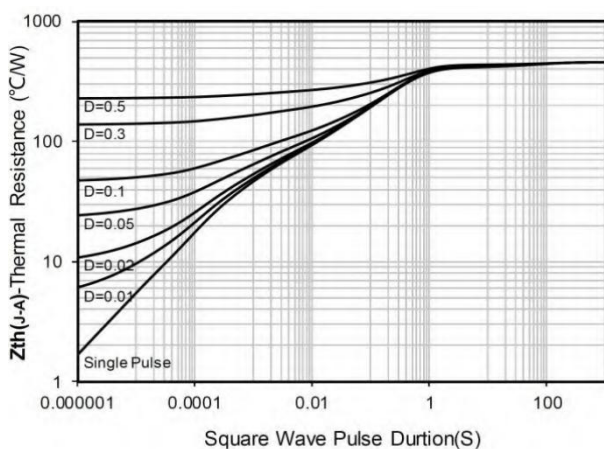
Normalized On-Resistance



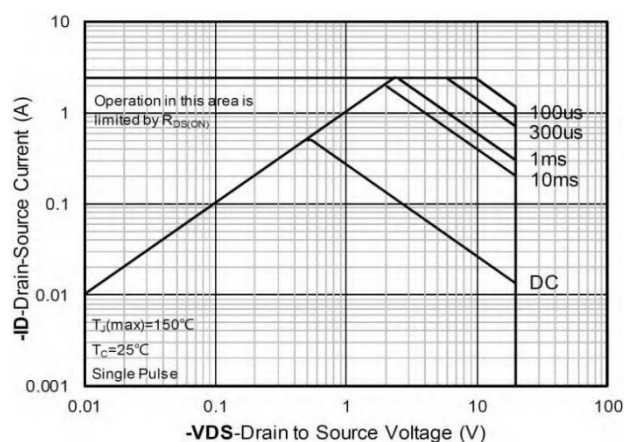
$R_{DS(on)}$ VS Drain Current



Forward characteristics of reverse diode

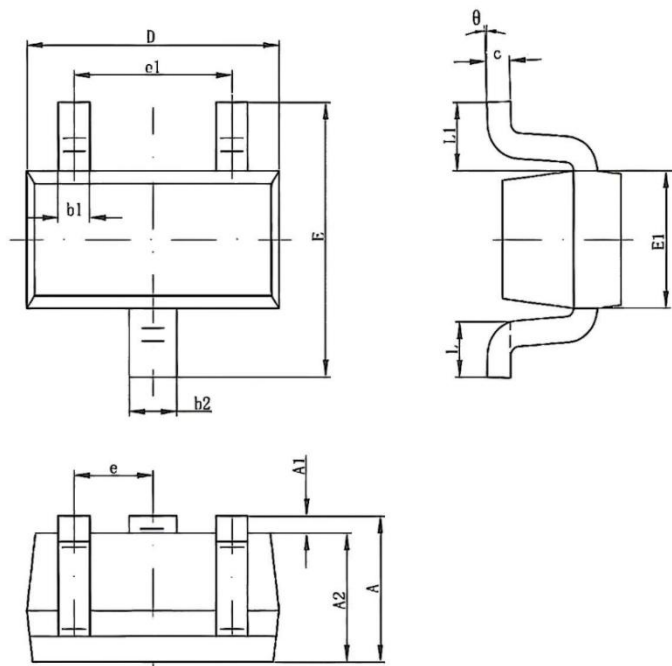


Maximum Transient Thermal Impedance



Safe Operation Area

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	1.450	1.750	0.057	0.069
E1	0.700	0.900	0.028	0.035
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°