

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-20V	0.75Ω@-4.5V	-0.66A
	1Ω@-2.5V	

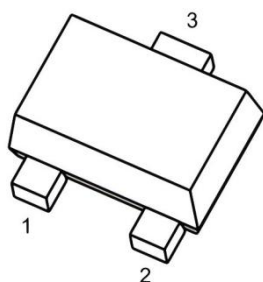
Feature

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

Application

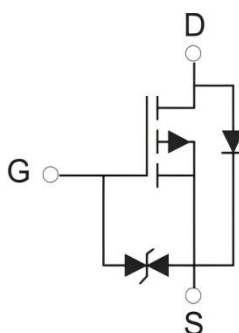
- Battery Switch
- DC/DC Converter

Package

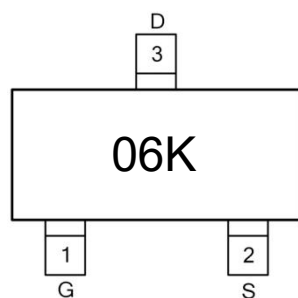


SOT-723

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	-0.66	A
Pulsed Drain Current	I_{DM}	-2.64	A
Power Dissipation	P_D	0.15	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	833	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature	T_J	-55 ~ +150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

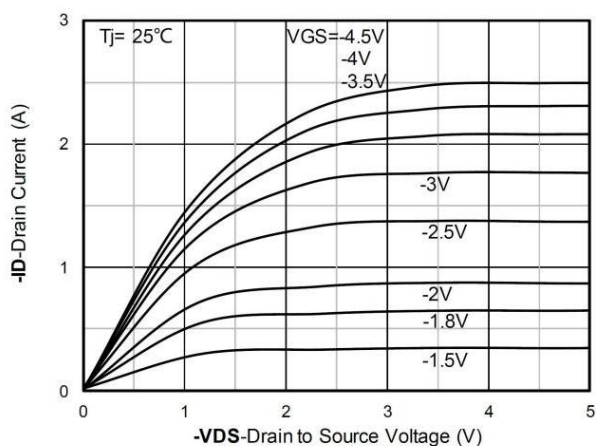
Electrical characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

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	-1.0	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-0.5A$		0.65	0.75	Ω
		$V_{GS}=-2.5V, I_D=-0.2A$		0.85	1	
Dynamic characteristics ¹⁾						
Input Capacitance	C_{iss}	$V_{DS}=-10V, V_{GS}=0V, f=1MHz$		75		pF
Output Capacitance	C_{oss}			20		
Reverse Transfer Capacitance	C_{rss}			14		
Total Gate Charge	Q_g	$V_{DS}=-10V, V_{GS}=-4.5V$ $I_D=-0.5A$		1.25		nC
Gate-Source Charge	Q_{gs}			0.35		
Gate-Drain Charge	Q_{gd}			0.27		
Turn-on delay time	$t_{d(on)}$	$V_{DS}=-10V, V_{GS}=-4.5V$ $R_G=3\Omega, R_L=2.5\Omega$		5		nS
Turn-on rise time	t_r			19		
Turn-off delay time	$t_{d(off)}$			15		
Turn-off fall time	t_f			24		
Source-Drain Diode characteristics						
Diode Continuous Current	I_S				-0.66	A
Diode Forward voltage	V_{SD}	$V_{GS}=0V, I_S=-1A, T_J=25^{\circ}C$			-1.2	V

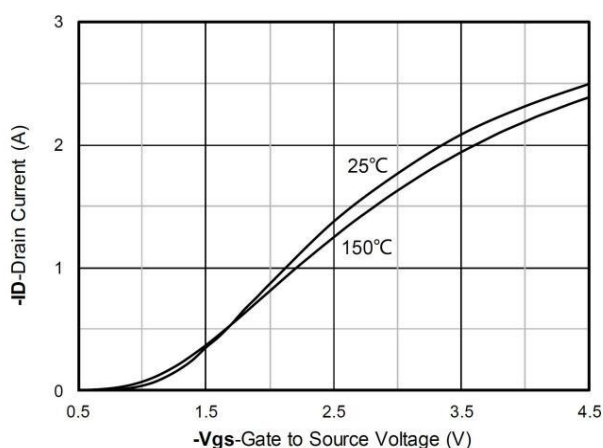
Notes:

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

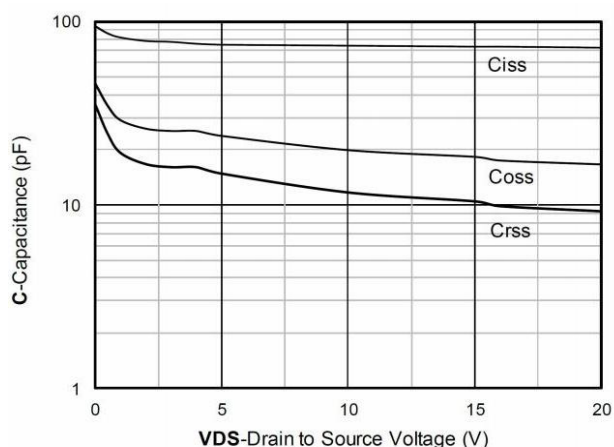
Typical Characteristics



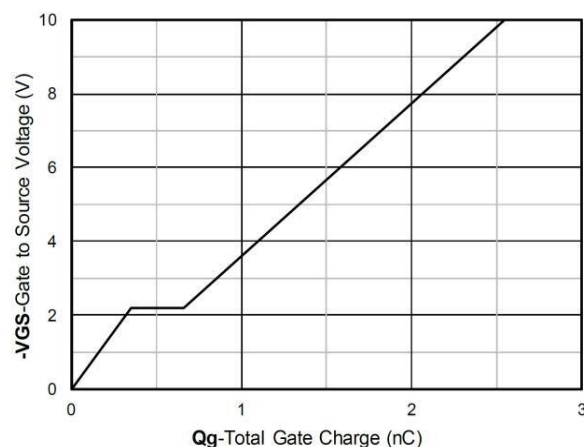
Output Characteristics



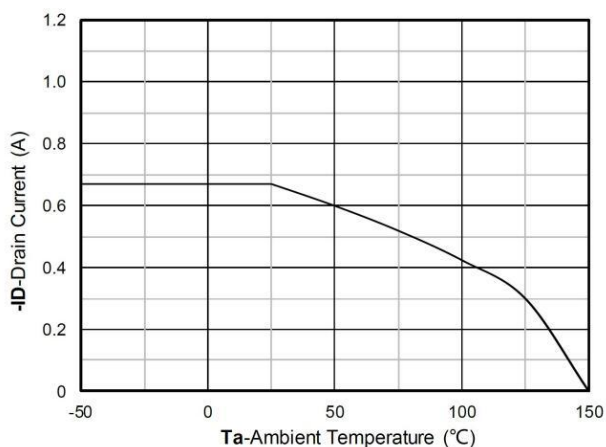
Transfer Characteristics



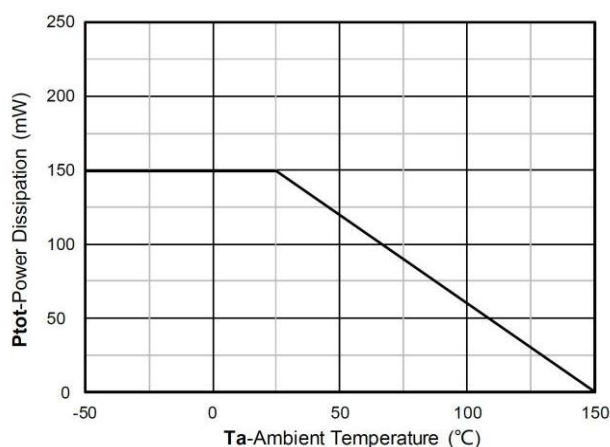
Capacitance Characteristics



Gate Charge

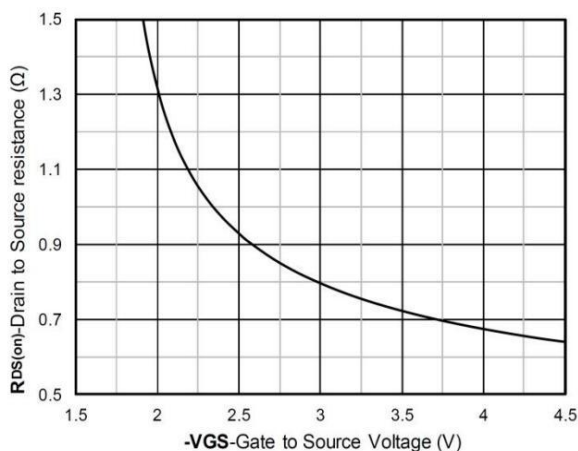


Current dissipation

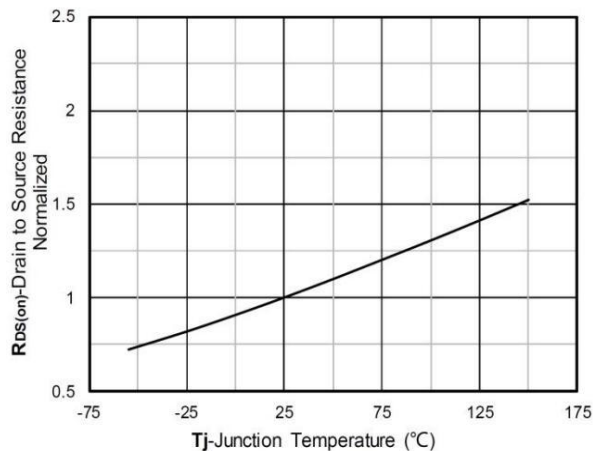


Power dissipation

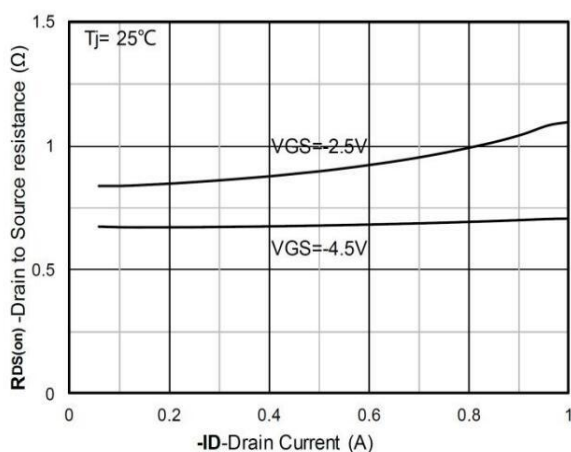
Typical Characteristics



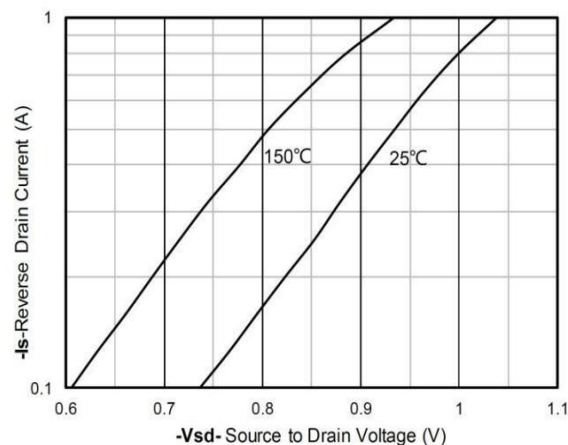
On-Resistance vs Gate to Source Voltage



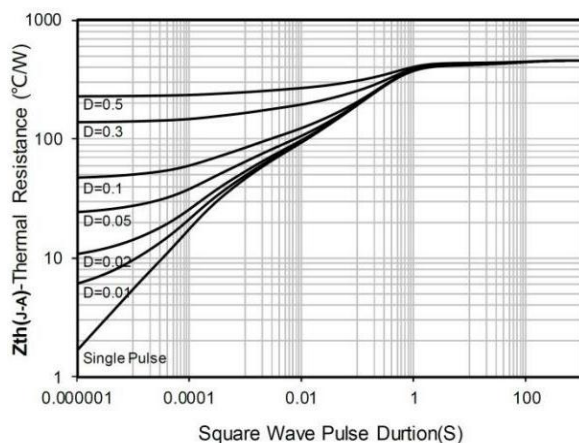
Normalized On-Resistance



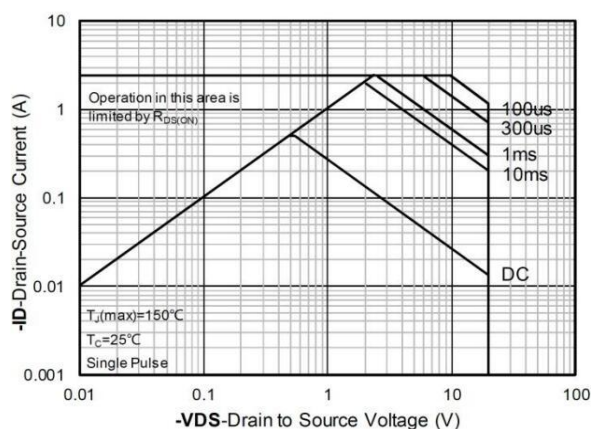
$R_{DS(on)}$ VS Drain Current



Forward characteristics of reverse diode

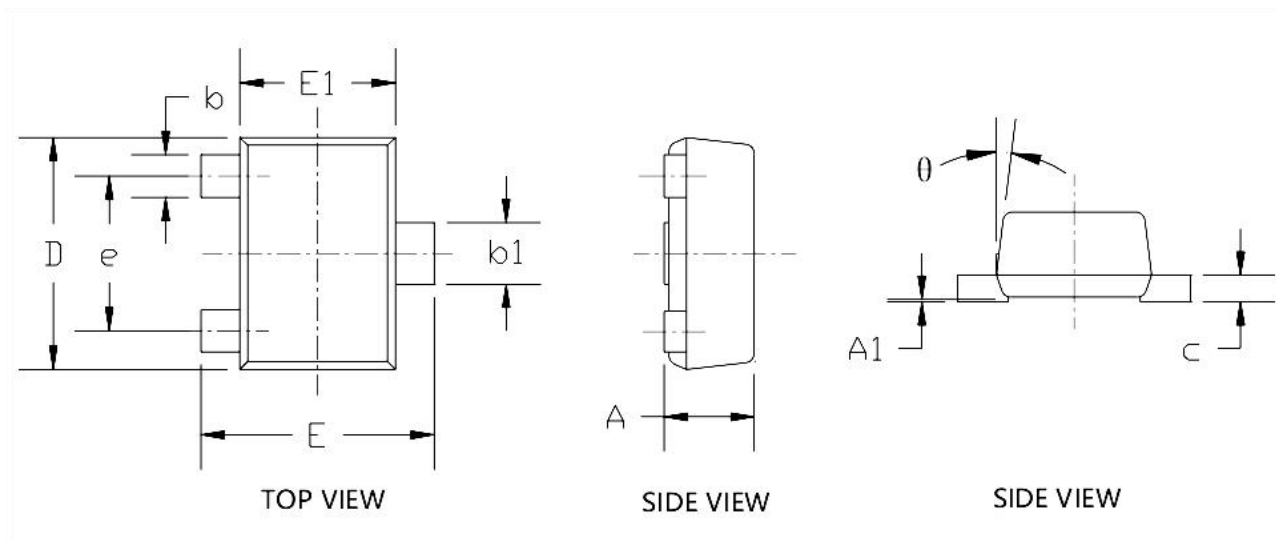


Maximum Transient Thermal Impedance



Safe Operation Area

SOT-723 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.430	0.500	0.017	0.020
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.007	0.011
b1	0.270	0.370	0.011	0.015
c	0.080	0.200	0.003	0.008
D	1.150	1.250	0.045	0.049
E	1.150	1.250	0.045	0.049
E1	0.750	0.850	0.030	0.033
e	0.800 TYP.		0.031 TYP.	
θ	7° REF.		7° REF.	