Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-20V	400mΩ@-4.5V	-0.7A
	550mΩ@-2.5V	

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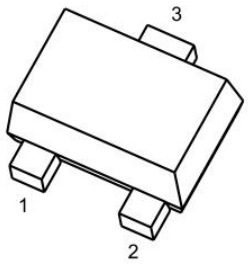
Feature

- High power and current handing capability
- Surface mount package
- ESD protected 2KV

Application

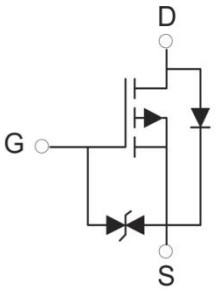
- Battery Switch
- DC/DC Converter

Package

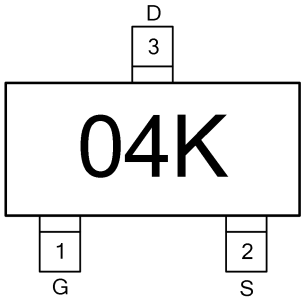


SOT-723

Circuit diagram



Marking



04K **:Device Code**

Order Information

Device	Package	Unit/Tape
SP2004KT7	SOT-723	8000

Absolute maximum ratings (Ta=25℃, unless otherwise noted)

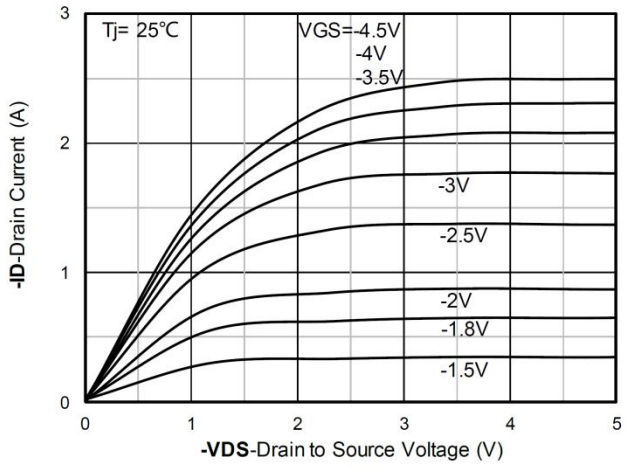
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	-20	V
Gate-Source Voltage	V_{GSS}	±12	V
Continuous Drain Current	I_D	-0.7	A
Pulse Drain Current Tested	I_{DM}	-2.8	A
Power Dissipation	P_D	150	mW
Thermal Resistance Junction-to-Ambient	$R_{\theta JA}$	833	°C/W
Storage Temperature Range	T_{STG}	-55 to 150	°C
Operating Junction Temperature Range	T_J	-55 to 150	°C

Electrical characteristics (Ta=25℃, unless otherwise noted)

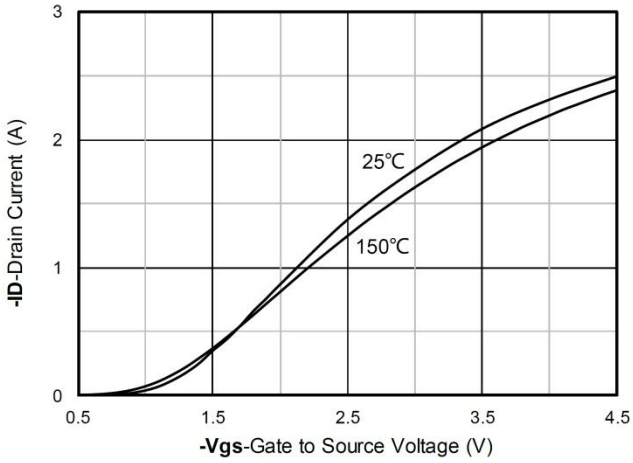
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS=0V , ID=-250μA	-20	-	-	V
Drain-Source Leakage Current	I_{DSS}	VDS=-16V , VGS=0V	-	-	-1	uA
Gate-Source Leakage Current	I_{GSS}	VGS=±12V , VDS=0V	-	-	±10	uA
Gate Threshold Voltage	$V_{GS(th)}$	VDS=VGS , ID=-250μA	-0.35	-0.65	-1.00	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	VGS=-4.5V , ID=-500mA	-	400	550	mΩ
		VGS=-2.5V , ID=-200mA	-	550	700	
Dynamic characteristics						
Input Capacitance	C_{iss}	VDS=-16V , VGS=0V , f=1MHz	-	113	-	pF
Output Capacitance	C_{oss}		-	15	-	
Reverse Transfer Capacitance	C_{rss}		-	9	-	
Total Gate Charge	Q_g	VDS=-10V , VGS=-4.5V , ID=-2A	-	1.9	-	nC
Gate-Source Charge	Q_{gs}		-	0.4	-	
Gate-Drain Charge	Q_{gd}		-	0.31	-	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	VDD=-10V VGS=-4.5V , RG=10Ω , ID=-200mA	-	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						
Diode Forward Voltage	V_{SD}	VGS=0V , IS=-1A , TJ=25℃	-	-	-1.2	V

.

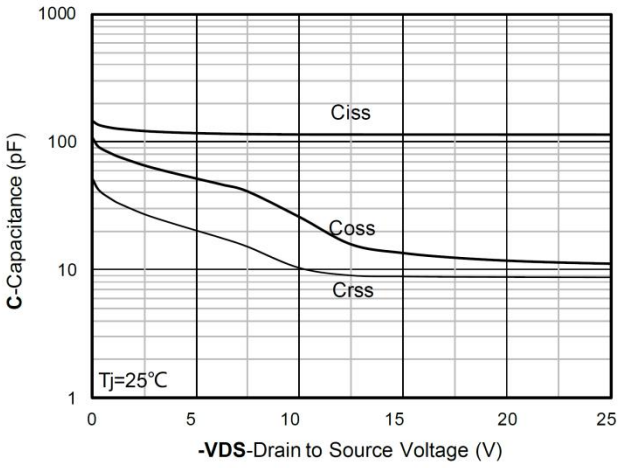
Typical Characteristics



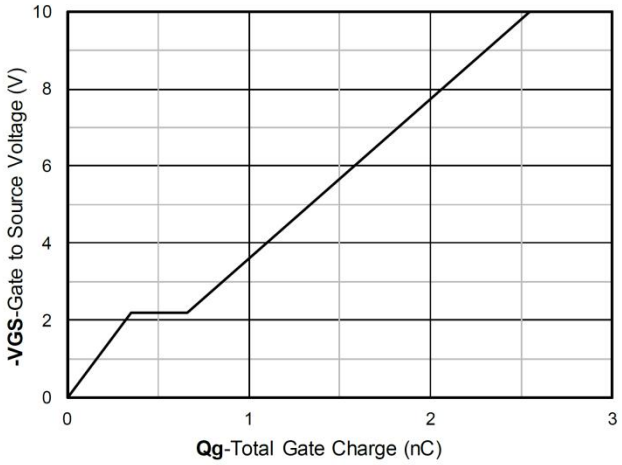
Output Characteristics



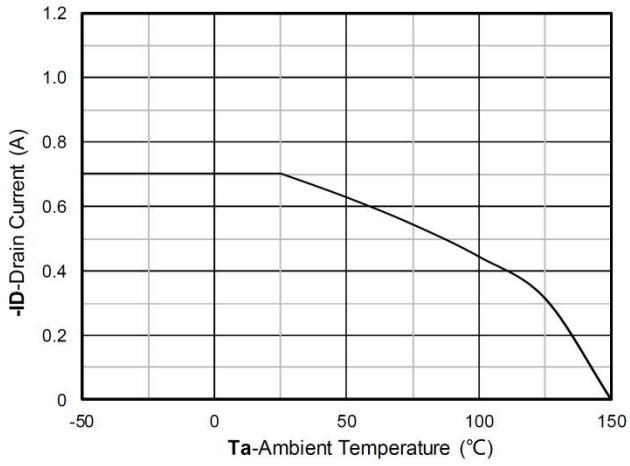
Transfer Characteristics



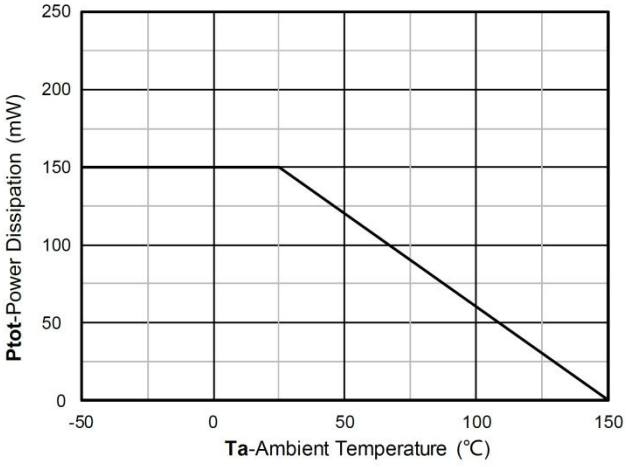
Capacitance Characteristics



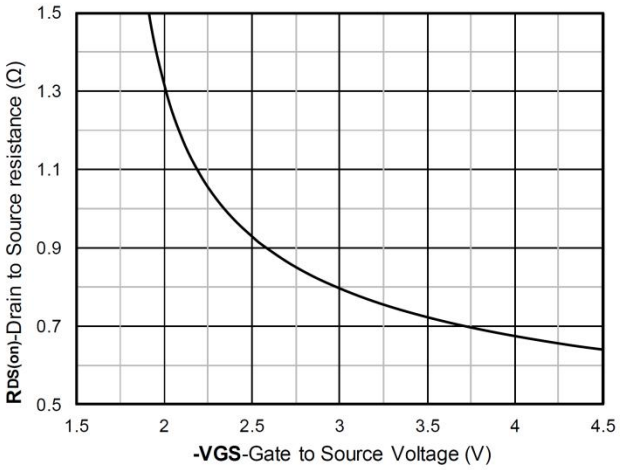
Gate Charge



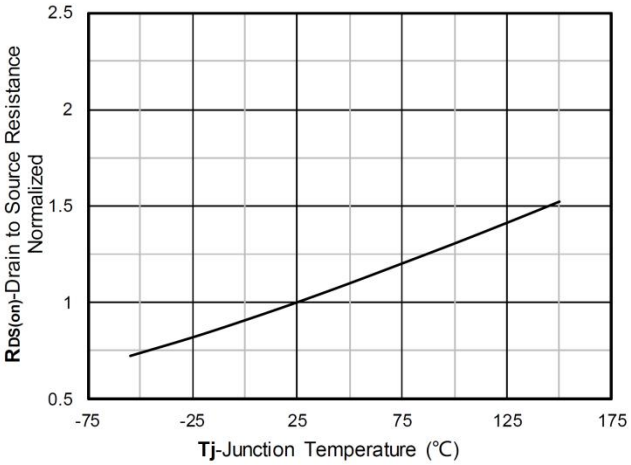
Current dissipation



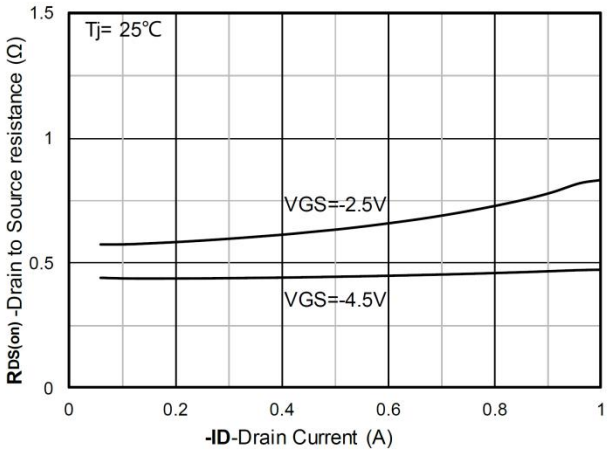
Power dissipation



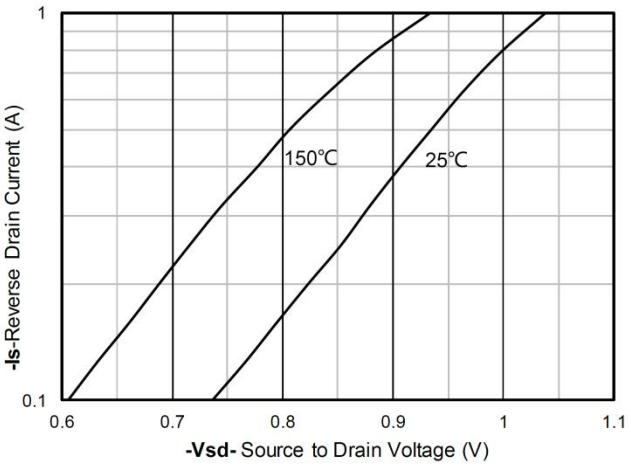
On-Resistance vs Gate to Source Voltage



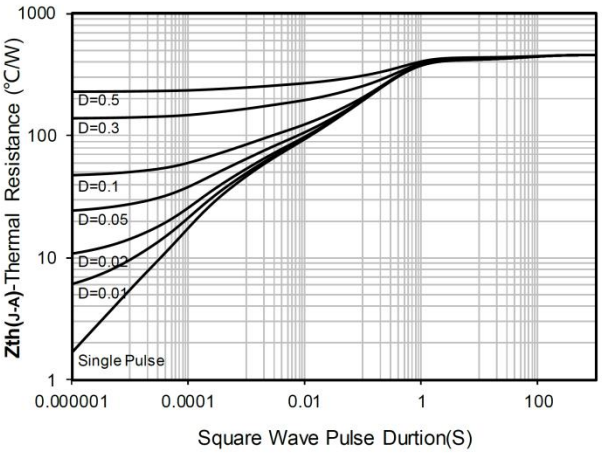
Normalized On-Resistance



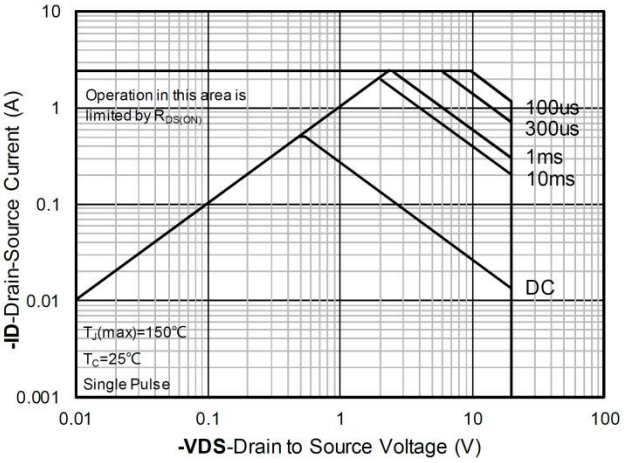
$R_{DS(on)}$ VS Drain Current



Forward characteristics of reverse diode

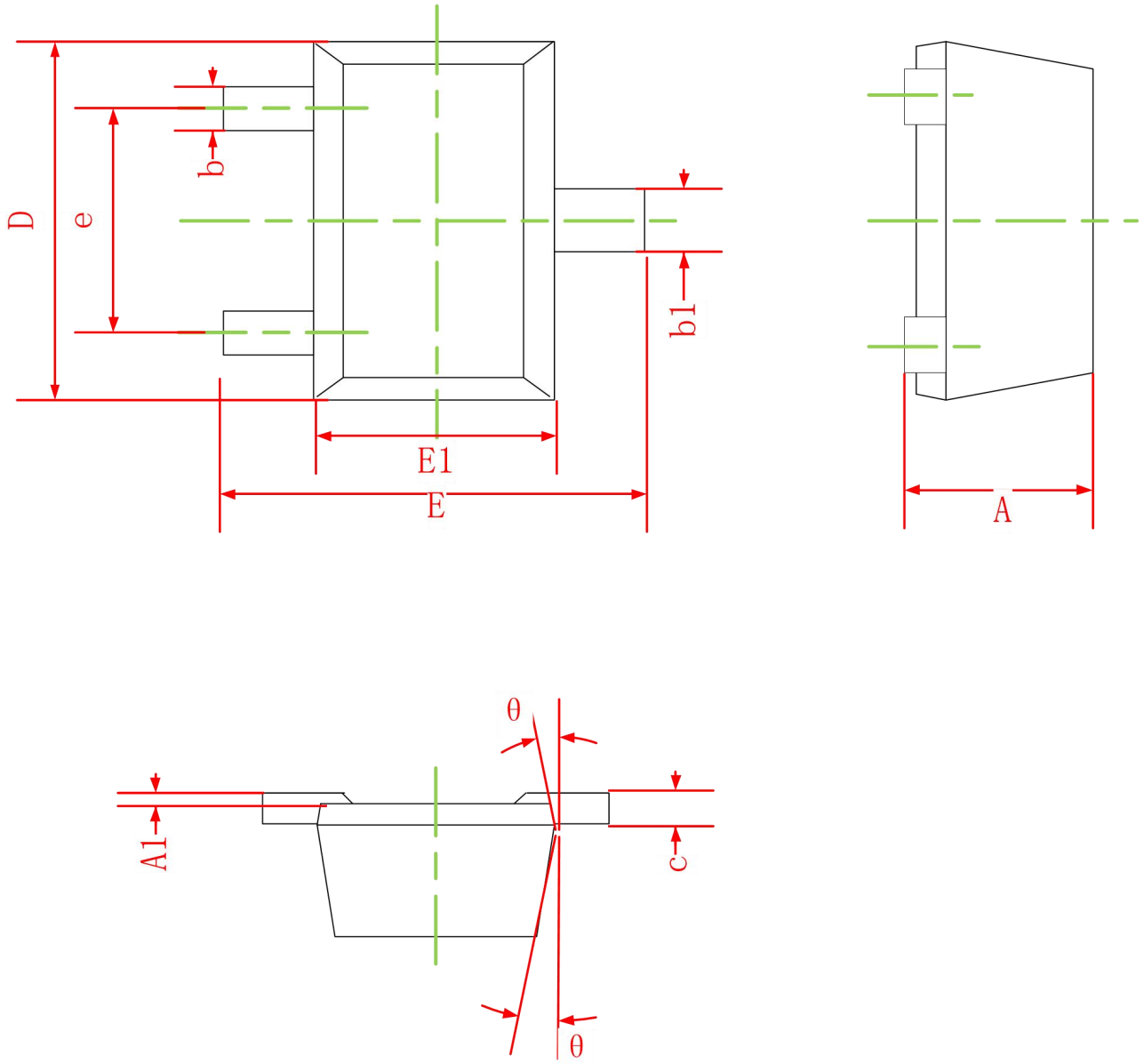


Maximum Transient Thermal Impedance



Safe Operation Area

SOT-723 Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.430	0.500
A1	0.000	0.050
b	0.170	0.270
b1	0.270	0.370
c	0.080	0.150
D	1.150	1.250
E	1.150	1.250
E1	0.750	0.850
e	0.800TYP.	
θ	7° REF.	