

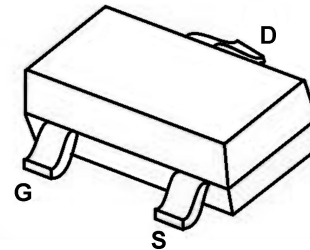
KY2004K

20V P-Channel Mosfet

FEATURES

- $R_{DS(ON)} \leq 520m\Omega$ (380m Ω Typ.)
@ $V_{GS}=-4.5V$
- $R_{DS(ON)} \leq 700m\Omega$ (480m Ω Typ.)
@ $V_{GS}=-2.5V$
- $R_{DS(ON)} \leq 1000m\Omega$ (600m Ω Typ.)
@ $V_{GS}=-1.8V$

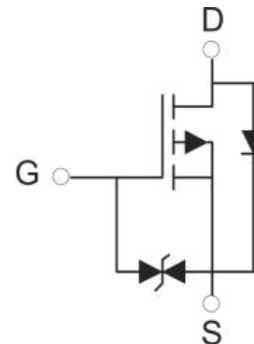
SOT-23



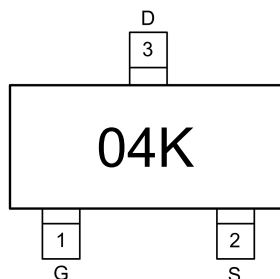
APPLICATIONS

- Load/Power Switching
- Interfacing, Logic Switching
- Battery Management for Ultra Small Portable Electronics

P-CHANNEL MOSFET



MARKING



MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	± 10	V
I_D	Continuous Drain Current	-0.66	A
I_{DM}	Pulsed Drain Current	-1.2	A
P_D	Power Dissipation	0.35	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	417	$^{\circ}C/W$
T_J	Junction Temperature	150	$^{\circ}C$
T_{STG}	Storage Temperature	-55~ +150	$^{\circ}C$

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MOSFET ELECTRICAL CHARACTERISTICS Ta=25 °C unless otherwise specified

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = -250μA	-20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = -20V, V _{GS} = 0V, T _J = 25°C	-	-	-1	μA
I _{GSS}	Gate to Body Leakage Current	V _{GS} = ±10V, V _{DS} = 0V	-	-	±10	uA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = -250μA	-0.35	-0.65	-1	V
R _{DS(on)}	Static Drain-Source On-Resistance ^{note1}	V _{GS} = -4.5V, I _D = -0.5A	-	380	520	mΩ
		V _{GS} = -2.5V, I _D = -0.2A	-	480	700	
		V _{GS} = -1.8V, I _D = -0.1A	-	600	1000	
Dynamic Characteristics ^{note2}						
C _{iss}	Input Capacitance	V _{DS} = -16V, V _{GS} = 0V f = 1.0MHz	-	113	-	pF
C _{oss}	Output Capacitance		-	15	-	pF
C _{rss}	Reverse Transfer Capacitance		-	9	-	pF
Switching Characteristics ^{note2}						
t _{d(on)}	Turn-On Delay Time	V _{GS} = -4.5V, V _{DS} = -10V R _G = 10Ω, I _D = -0.2A	-	9	-	ns
t _r	Turn-On Rise Time		-	5.7	-	ns
t _{d(off)}	Turn-Off Delay Time		-	32.6	-	ns
t _f	Turn-Off Fall Time		-	20.3	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
V _{SD}	Drain to Source Diode Forward Voltage	V _{GS} = 0V, I _{SD} = -0.5A T _J = 25°C	-	-	-1.2	V

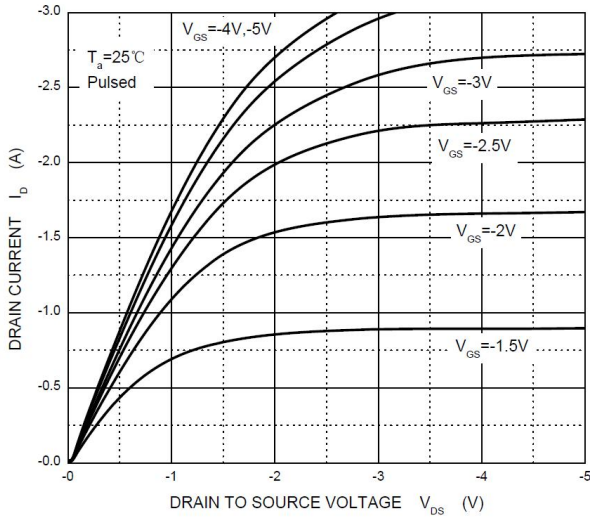
Notes: 1. Pulse Test: Pulse width < 300μs, Duty Cycle ≤ 2%

2. Guaranteed by design, not subject to production testing

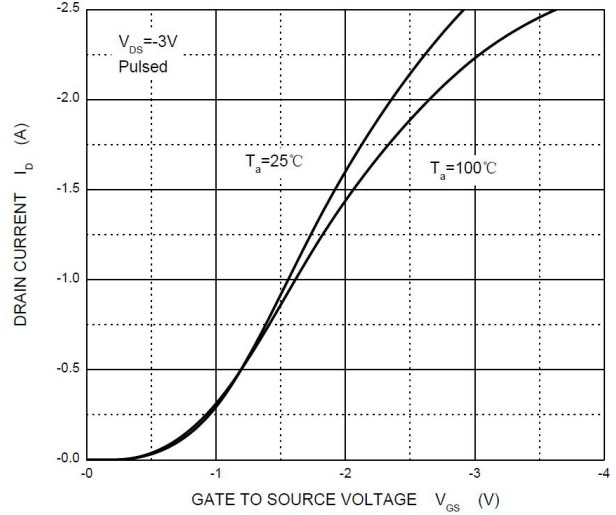
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TYPICAL PERFORMANCE CHARACTERISTICS

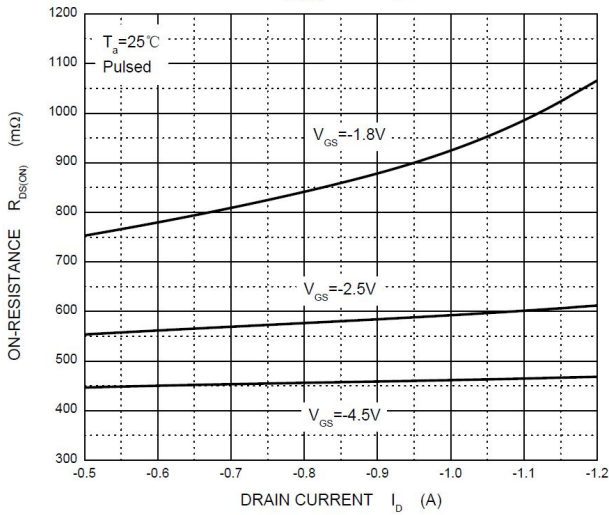
Output Characteristics



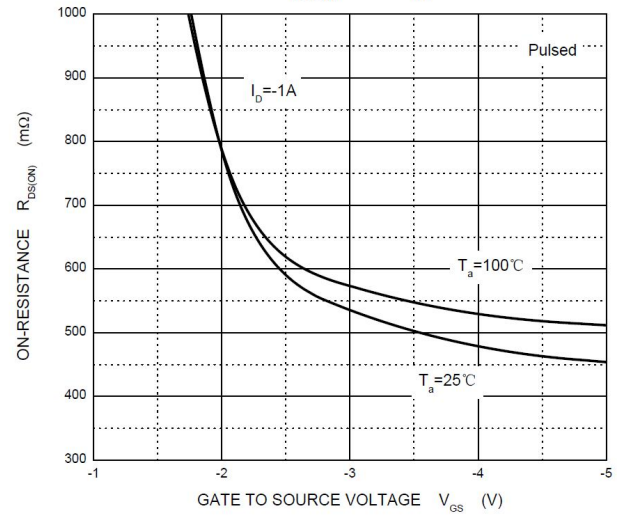
Transfer Characteristics



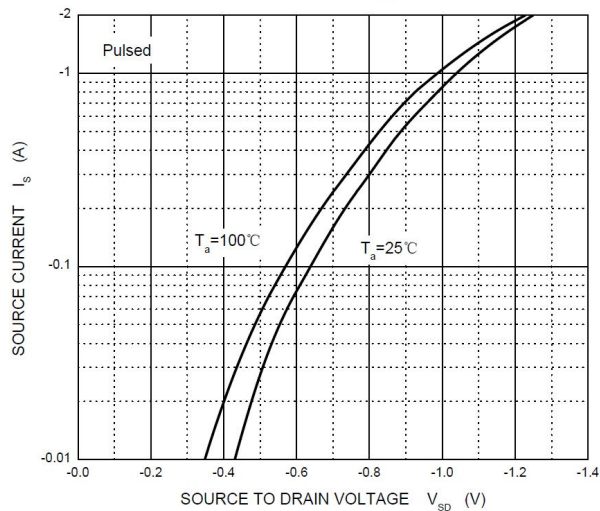
$R_{DS(ON)}$ — I_D



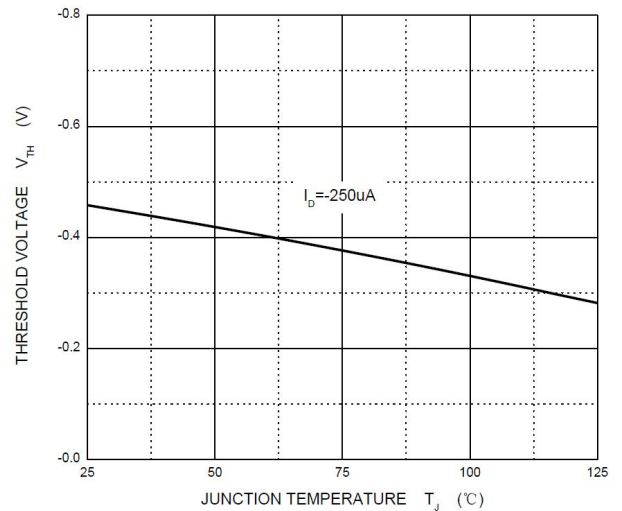
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}

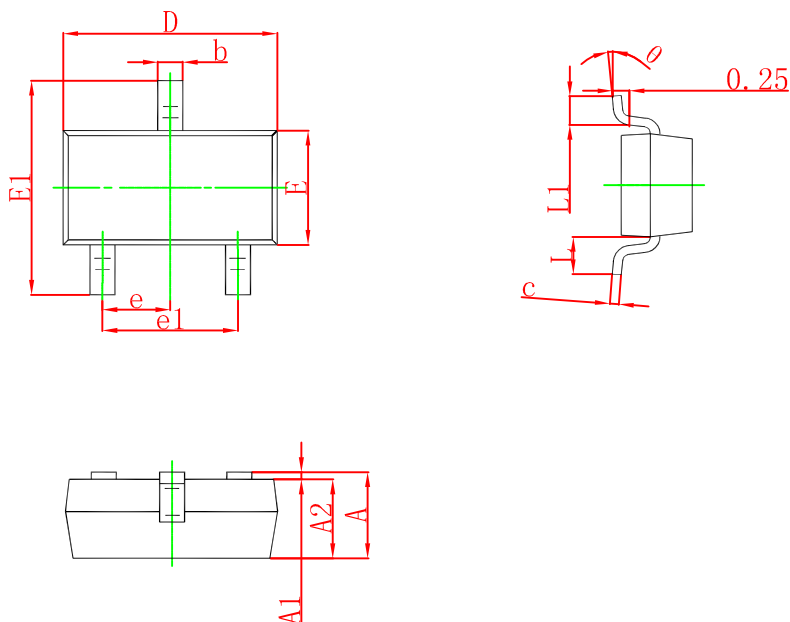


Threshold Voltage



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SOT-23 PACKAGE OUTLINE DRAWING



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°