

**20V P-Channel MOSFET**

**Features**

- Surface Mount Package
- P-Channel Switch with Low  $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive

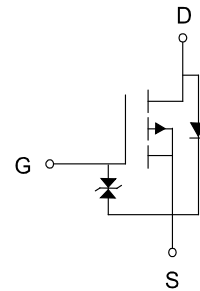
**Applications**

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

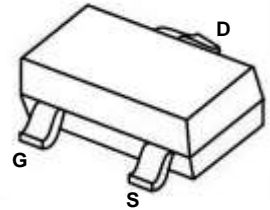
**MOSFET Product Summary**

$V_{DSS}$	$R_{DS(ON)}$ @ $V_{GS} = -4.5V$	$R_{DS(ON)}$ @ $V_{GS} = -2.5V$	$I_D$
- 20V	1.2Ω	1.5Ω	- 660mA

**Package and Pin Configuration**

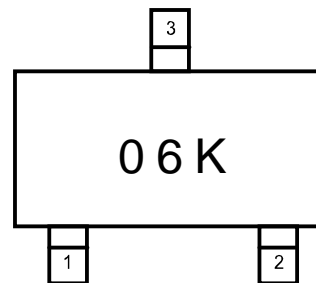


Circuit diagram



SOT-523

**Marking Information**



06K= device marking code

**Absolute Maximum Ratings ( $T_A=25^{\circ}C$  unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	±10	V
Continuous Drain Current	$I_D$	-0.66	A
Pulsed Drain Current	$I_{DM}$	-1.2	A
Power Dissipation	$P_D$	0.15	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	833	$^{\circ}C/W$
Junction Temperature	$T_J$	150	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55~ +150	$^{\circ}C$

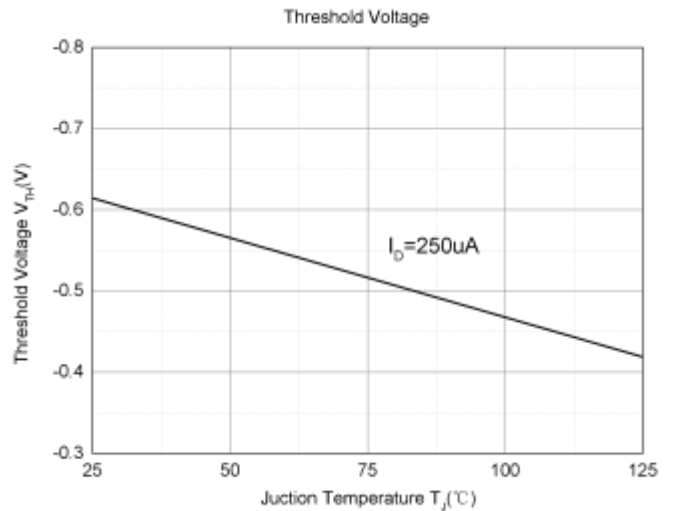
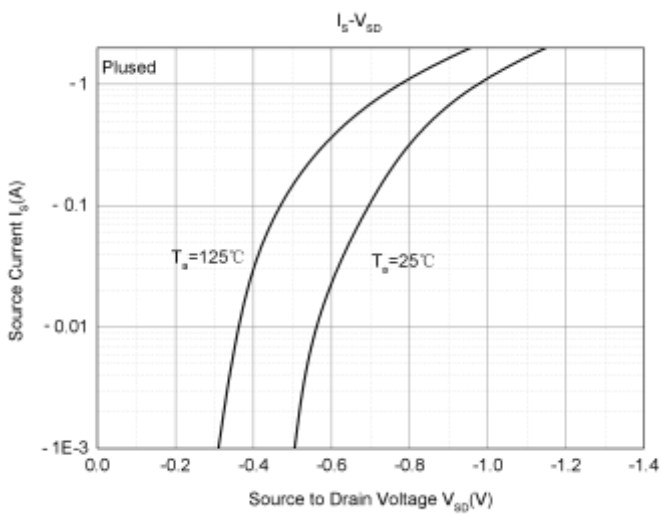
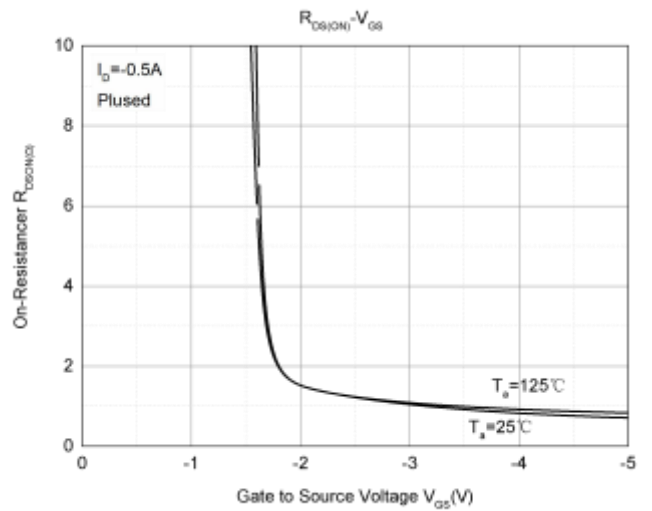
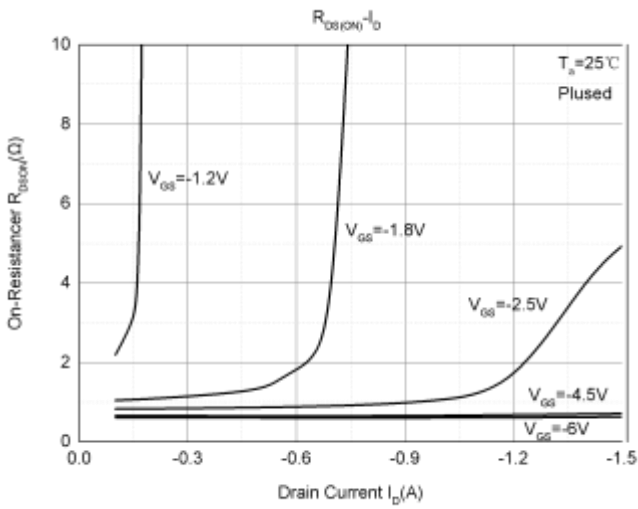
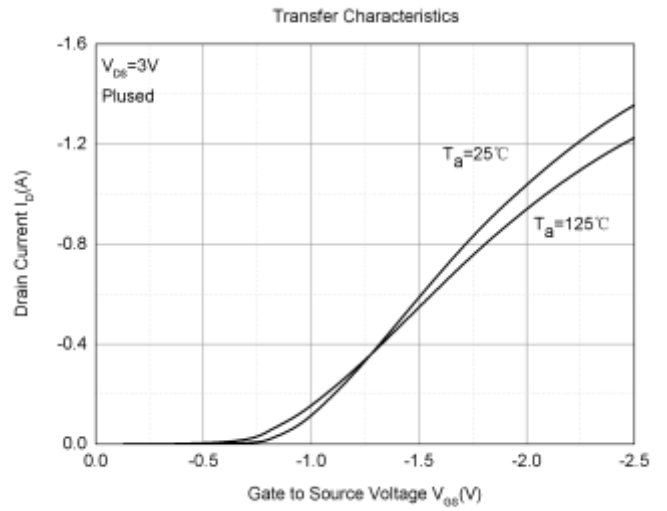
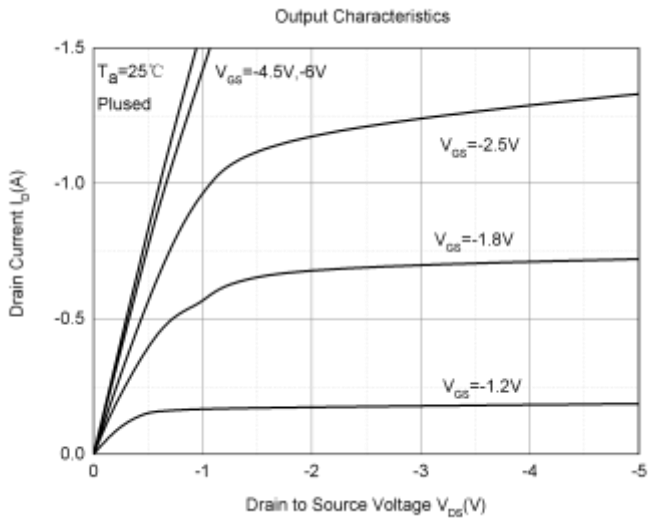
**Electrical characteristics (T<sub>A</sub>=25 °C, unless otherwise noted)**

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-20			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = -16V, V <sub>GS</sub> = 0V			-1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±8V, V <sub>DS</sub> = 0V			±10	μA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-0.3	-0.65	-1	V
Drain-source on-resistance <sup>1)</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -0.5A		0.65	1.2	Ω
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -0.2A		0.85	1.5	
		V <sub>GS</sub> = -1.8V, I <sub>D</sub> = -0.1A		1	2.2	
<b>Dynamic characteristics<sup>2)</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = -16V, V <sub>GS</sub> = 0V, f = 1MHz		113		pF
Output Capacitance	C <sub>oss</sub>			15		
Reverse Transfer Capacitance	C <sub>rss</sub>			9		
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DS</sub> = -10V, I <sub>D</sub> = -200mA, V <sub>GS</sub> = -4.5V, R <sub>G</sub> = 10Ω		9		ns
Turn-on rise time	t <sub>r</sub>			5.7		
Turn-off delay time	t <sub>d(off)</sub>			32.6		
Turn-off fall time	t <sub>f</sub>			20.3		
<b>Source-Drain Diode characteristics</b>						
Diode Forward voltage	V <sub>DS</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = -0.5 A			-1.2	V

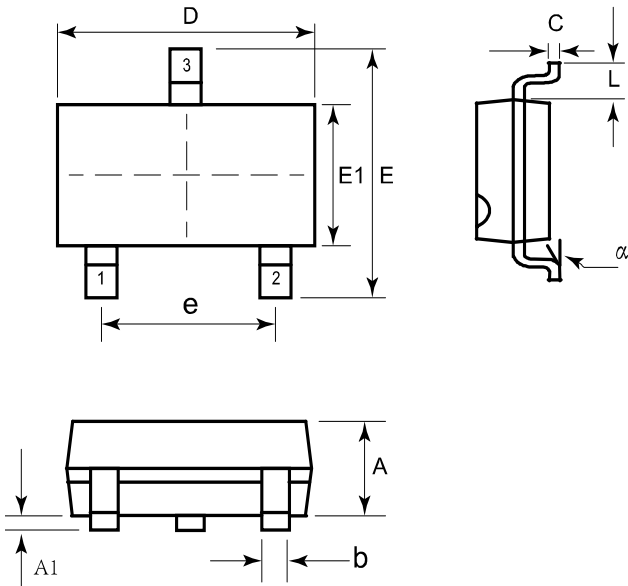
Notes:

- 1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤ 2%.
- 2) Guaranteed by design, not subject to production testing.

**Typical Electrical and Thermal Characteristics**

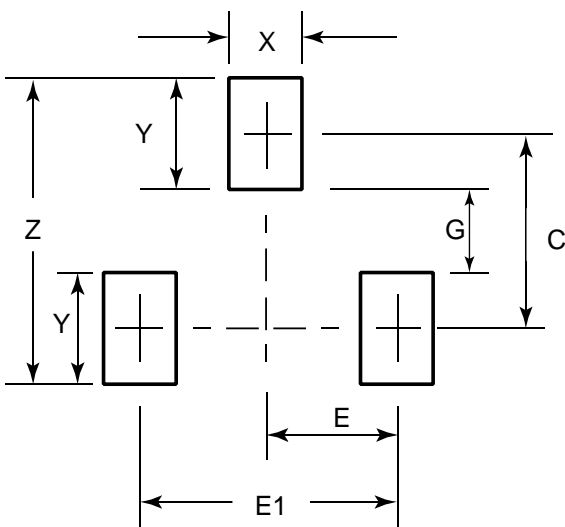


**SOT-523 Package Outline Drawing**



SYM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.023	0.030	0.031	0.60	0.75	0.80
A1	0.00		0.004	0.00		0.10
b	0.005		0.012	0.15		0.30
C	0.003		0.008	0.10		0.20
D	0.059	0.063	0.067	1.50	1.60	1.70
E	0.057	0.063	0.069	1.45	1.60	1.75
E1	0.029	0.031	0.033	0.75	0.80	0.85
e	0.039 BSC			1.00 BSC		
L	0.009 BSC			0.22 BSC		
$\alpha$	0°		8°	0°		8°

**Suggested Land Pattern**



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	1.40	0.055
E	0.50	0.020
E1	1.00	0.039
G	0.60	0.024
X	0.40	0.016
Y	0.80	0.031
Z	2.20	0.087