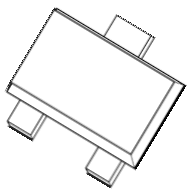
SOT-723 Plastic-Encapsulate MOSFET

20V N-Channel MOSFET

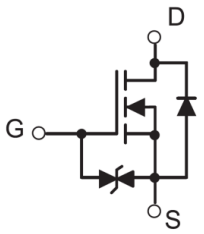
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	170mΩ@-4.5V	0.75A
	230mΩ@-2.5V	
	330mΩ@-1.8V	

SOT-723



Schematic diagram



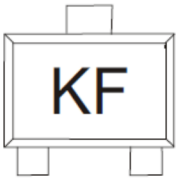
Feature

- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge
- ESD Protected

Application

- Load Switch
- DC/DC Converter

MARKING:



ABSOLUTE MAXIMUM RATINGS (T_A = 25℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	20	V
Gate - Source Voltage		V_{GS}	±12	V
Continuous Drain Current[1,5]	T_A = 25℃	I_D	0.75	A
Pulsed Drain Current[2]		I_{DM}	3.0	A
Power Dissipation[4,5]	T_A = 25℃	P_D	150	mW
Thermal Resistance from Junction to Ambient[5]		$R_{\theta JA}$	833	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

Electrical Characteristics (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 20V, V_{GS} = 0V			1	μA
Gate - Body Leakage Current	I_{GSS}	V_{GS} = ±10V, V_{DS} = 0V			±10	μA
On Characteristics[3]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	0.4	0.7	1	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} =-4.5V, I_D = 0.65A		170	260	mΩ
		V_{GS} = 2.5V, I_D = 0.55A		230	360	
		V_{GS} = 1.8V, I_D =0.45A		330	590	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 10V, f = 1MHz		55.6		pF
Output Capacitance	C_{oss}			15.2		
Reverse Transfer Capacitance	C_{rss}			10.3		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DD} = 10V, V_{GS} = 4.5V, I_D=0.65A		0.78		nC
Gate-source Charge	Q_{gs}			0.23		
Gate-drain Charge	Q_{gd}			0.01		
Turn-on Delay Time	$t_{d(on)}$	V_{DS} = 10V, V_{GS} = 4.5V I_D = 0.5A, R_{GEN}=10Ω		6.7		ns
Turn-on Rise Time	t_r			4.8		
Turn-off Delay Ttime	$t_{d(off)}$			17.3		
Turn-off Fall Time	t_f			7.4		
Source - Drain Diode Characteristics						
Diode Forward Voltage[3]	V_{SD}	V_{GS} = 0V, I_S = 0.15A			1.2	V

Notes :

1.The maximum current rating is limited by package.

2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

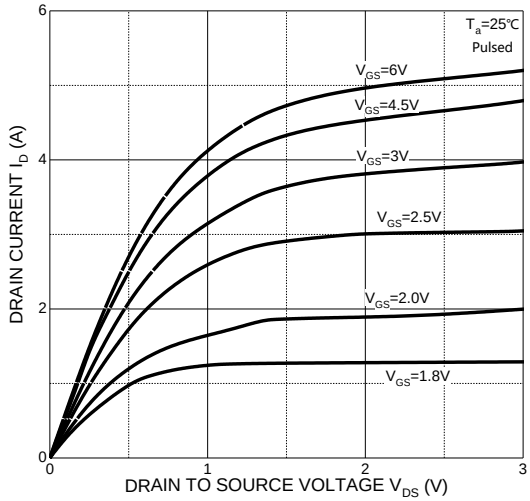
3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

4.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.

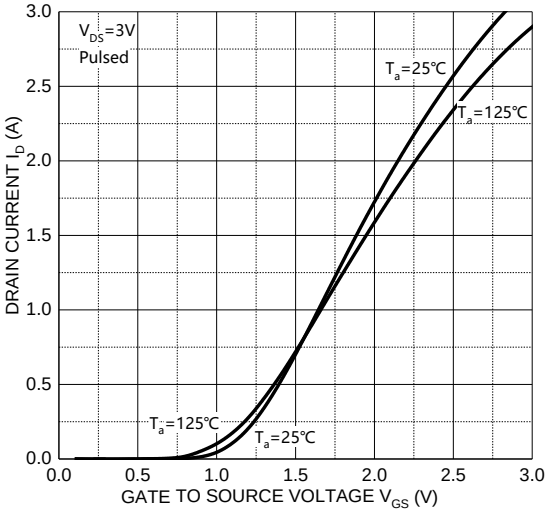
5.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

Typical Characteristics

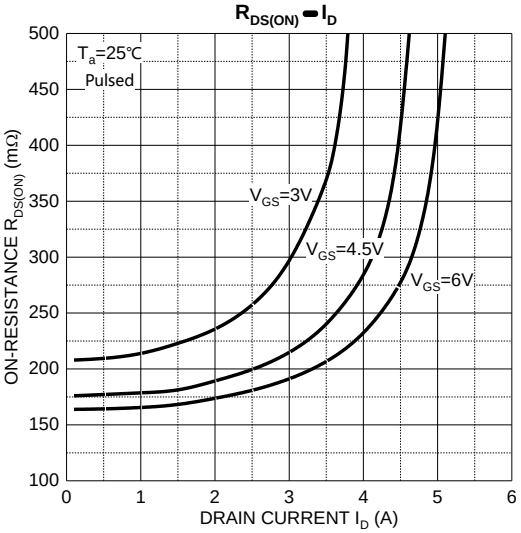
Output Characteristics



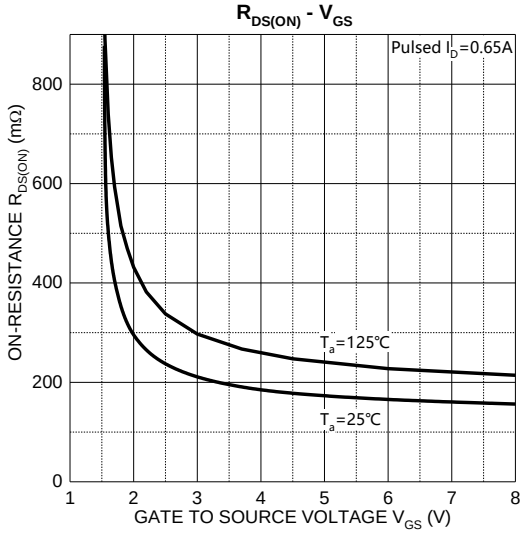
Transfer Characteristics



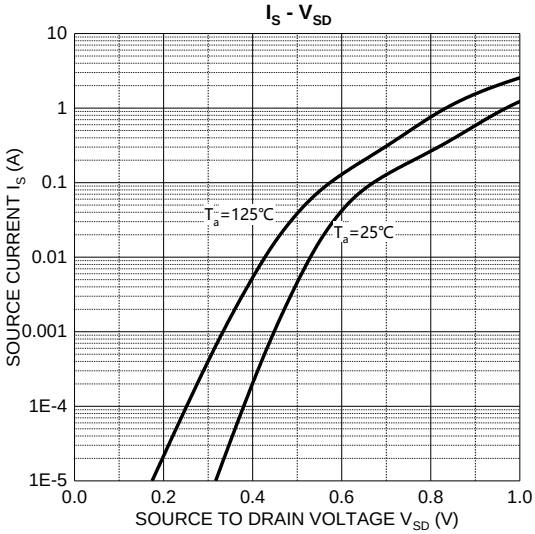
$R_{DS(ON)}$ - I_D



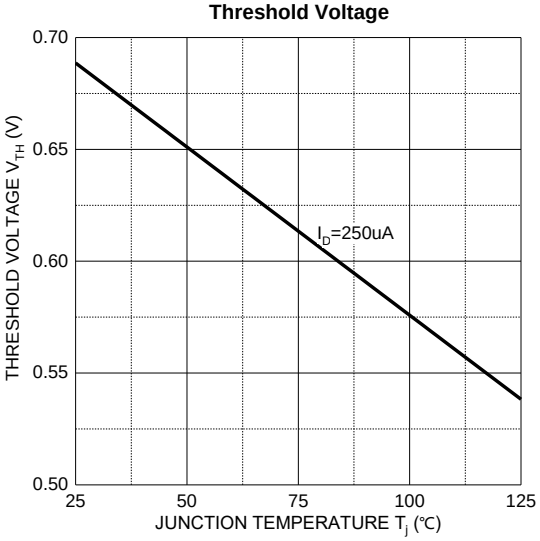
$R_{DS(ON)}$ - V_{GS}



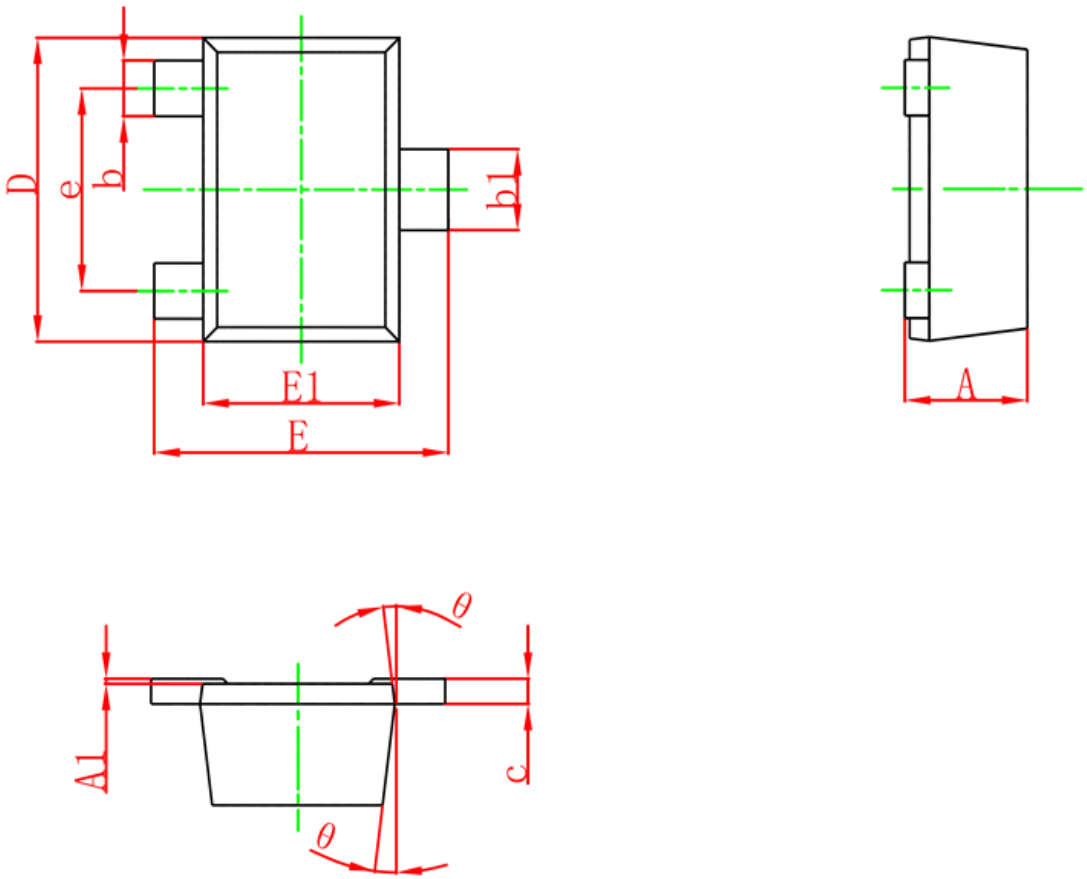
I_S - V_{SD}



Threshold Voltage



SOT-723 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.400	0.500	0.016	0.020
A1	0.000	0.050	0.000	0.002
b	0.150	0.270	0.006	0.011
b1	0.200	0.370	0.008	0.015
c	0.060	0.160	0.002	0.006
D	1.100	1.300	0.043	0.051
E	1.100	1.300	0.043	0.051
E1	0.700	0.900	0.028	0.035
e	0.8TYP		0.031TYP	
θ	8°REF		8°REF	