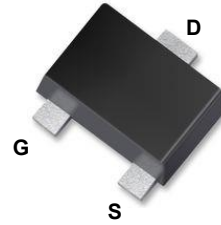


Features

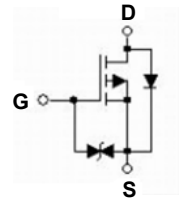
- Lead free
- Surface mount package
- P-Channel switch with low $R_{DS(on)}$
- Operated at low logic level gate drive

Applications

- Load/Power switching
- Interfacing, logic switching
- Battery management for ultra small portable electronics



SOT-723



Schematic Diagram

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 ¹	I_D	-0.66	A
Pulsed Drain Current ($t_p=10\mu\text{S}$)	I_{DM}	-1.2	A
Power Dissipation ¹	P_D	150	mW
Thermal Resistance from Junction to Ambient ¹	$R_{\theta JA}$	833	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 to +150	$^\circ\text{C}$
Lead Temperature for Soldering Purposes(1/8" from case for 10 S)	T_L	260	$^\circ\text{C}$

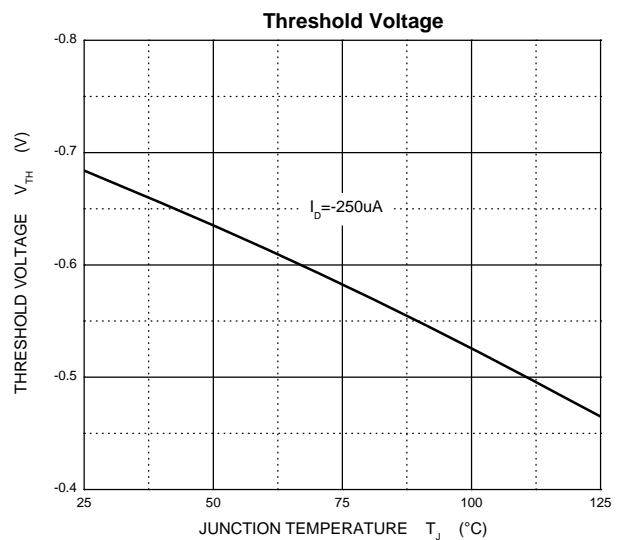
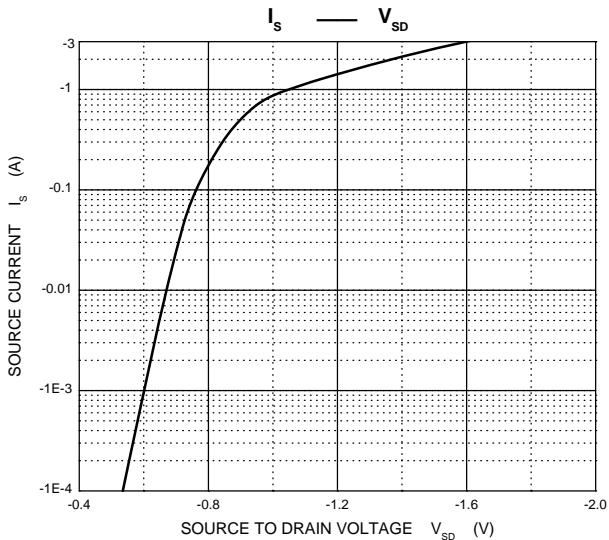
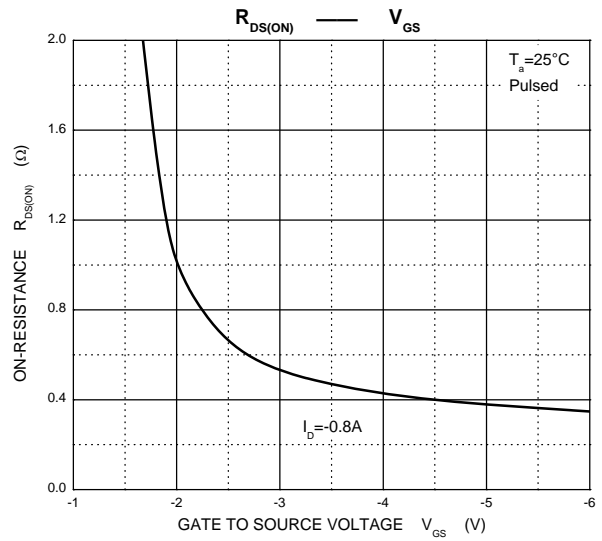
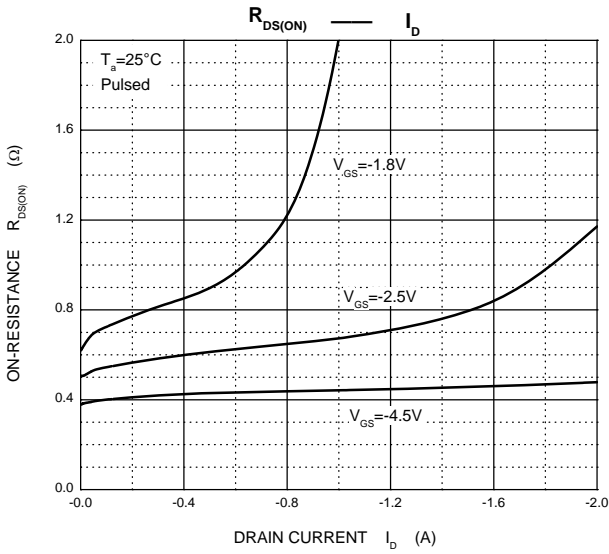
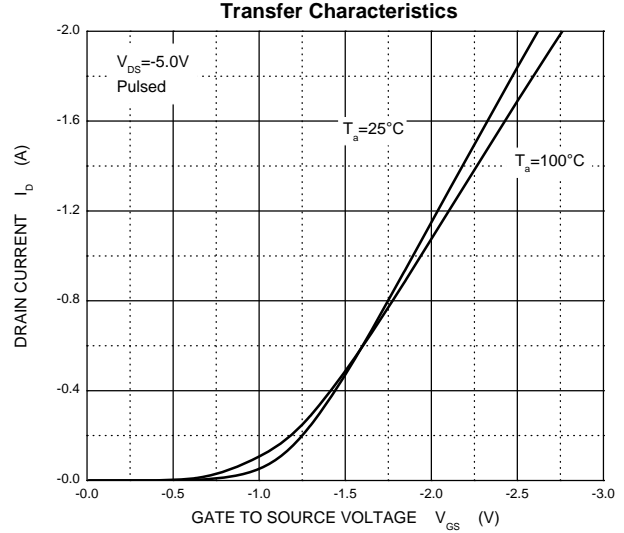
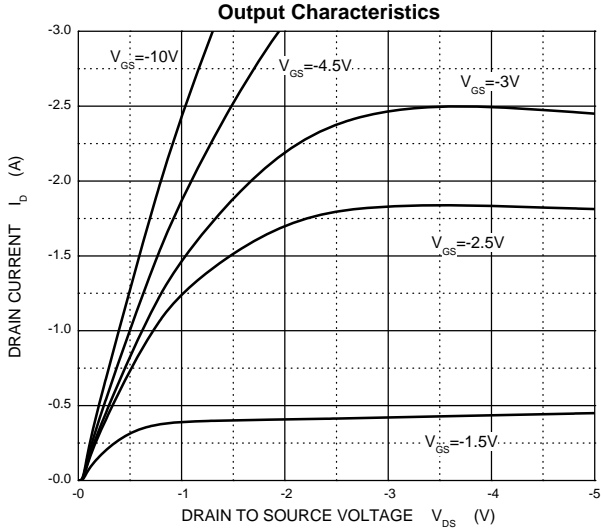
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

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}	$V_{DS} = -20V, V_{GS} = 0V$	-	-	-1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 12V, V_{DS} = 0V$	-	-	20	μA
Gate Threshold Voltage ²	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.35	-	-1.1	V
Drain-Source On-Resistance ²	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -1A$	-	-	520	m Ω
		$V_{GS} = -2.5V, I_D = -0.8A$	-	-	700	m Ω
		$V_{GS} = -1.8V, I_D = -0.5A$	-	-	950	m Ω
Forward Transconductance ²	g_{FS}	$V_{DS} = -10V, I_D = -0.54A$	-	1.2	-	S
Diode Forward Voltage	V_{SD}	$I_S = -0.5A, V_{GS} = 0V$	-	-	-1.2	V
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}	$V_{DS} = -16V, V_{GS} = 0V, f = 1MHz$	-	113	170	pF
Output Capacitance	C_{oss}		-	15	25	pF
Reverse Transfer Capacitance	C_{rss}		-	9	15	pF
SWITCHING CHARACTERISTICS						
Turn-on Delay Time ³	$t_{d(on)}$	$V_{GS} = -4.5V, V_{DS} = -10V,$ $I_D = -200mA, R_{GEN} = 10\Omega$	-	9	-	nS
Turn-on Rise Time ³	t_r		-	5.8	-	nS
Turn-off Delay Time ³	$t_{d(off)}$		-	32.7	-	nS
Turn-off Fall Time ³	t_f		-	20.3	-	nS

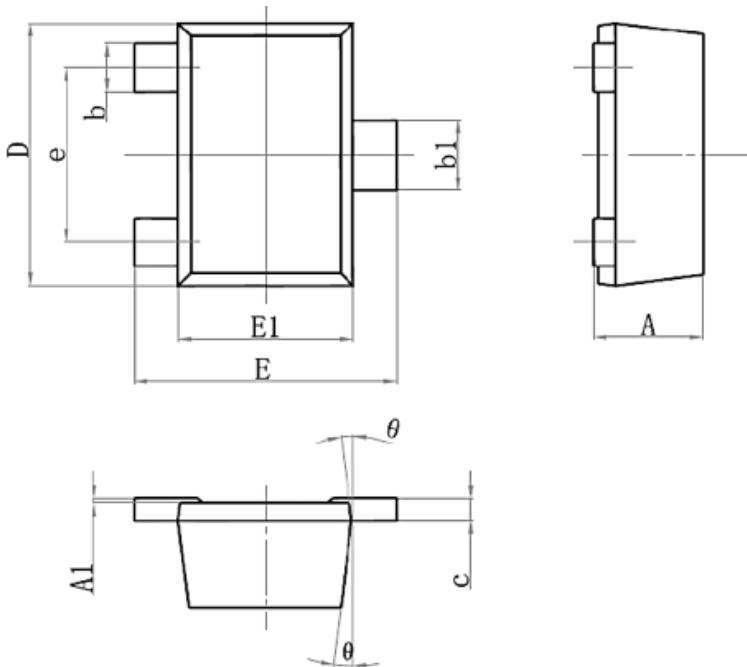
Notes:

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test: Pulse Width=300 μ S, Duty Cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.

Typical Characteristics



Package Outline Dimensions SOT-723



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	0.150	0.003	0.006
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	0.800TYP.		0.031TYP.	
θ	7° REF.		7° REF.	

Order Information

Device	Package	Marking	Carrier	Quantity	HSF Status
S3139K	SOT-723	3	Tape & Reel	8000pcs/Reel	RoHS compliant