

# CSM3139S723

## 20V P-Channel MOSFET

**Voltage**

**-20 V**

**Current**

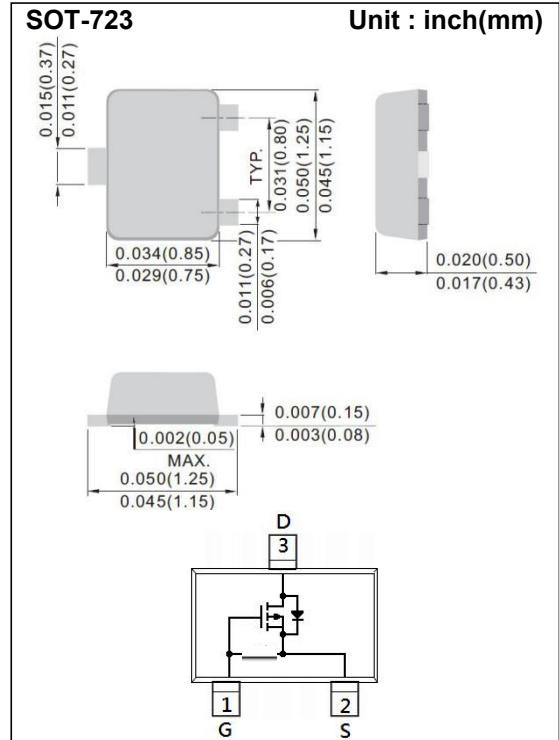
**-1 A**

### Features

- Switching with Low RDS(ON)
- Lead free in compliance directive
- Green molding compound

### Mechanical Data

- Case: SOT-723 Package
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.00005 ounce, 0.0013 gram



### Maximum Ratings and Thermal Characteristics (T<sub>A</sub>=25 °C unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V <sub>DS</sub>	-20	V
Gate-Source Voltage		V <sub>GS</sub>	±12	V
Continuous Drain Current		I <sub>D</sub>	-1	A
Pulsed Drain Current		I <sub>DM</sub>	-2	A
Power Dissipation	T <sub>a</sub> =25°C	P <sub>D</sub>	150	mW
	Derate above 25°C		1.2	mW/°C
Operating Junction and Storage Temperature Range		T <sub>J</sub> , T <sub>STG</sub>	-55~150	°C
Typical Thermal resistance Junction to Ambient (Note 1)		R <sub>θJA</sub>	833	°C/W

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

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
<b>Static</b> (Note 2)						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.35	-0.77	-1.1	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-0.45A$	-	0.40	0.5	$\Omega$
		$V_{GS}=-2.5V, I_D=-0.35A$	-	0.55	0.70	
		$V_{GS}=-1.8V, I_D=-0.25A$	-	0.80	0.95	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-20V, V_{GS}=0V$	-	-	-1	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 12V, V_{DS}=0V$	-	-	$\pm 20$	$\mu A$
Forward Transconductance	$g_{FS}$	$V_{DS}=-10V, I_D=-0.45A$	-	1.2	-	S
Diode Forward Voltage	$V_{SD}$	$I_S=-0.45A, V_{GS}=0V$	-	-0.85	-1.2	V
<b>Dynamic</b> (Note 3)						
Input Capacitance	$C_{iss}$	$V_{DS}=-16V, V_{GS}=0V,$ $f=1.0MHz$	-	115	-	pF
Output Capacitance	$C_{oss}$		-	15	-	
Reverse Transfer Capacitance	$C_{rss}$		-	9	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-10V, I_D=-200mA,$ $V_{GS}=-4.5V,$ $R_G=10\Omega$	-	9.2	-	ns
Turn-On Rise Time	$t_r$		-	6	-	
Turn-Off Delay Time	$t_{d(off)}$		-	33	-	
Turn-Off Fall Time	$t_f$		-	21	-	

### NOTES :

1.  $R_{\theta JA}$  is surface mounted on a 1 inch FR-4 with 2oz. square pad of copper
2. Pulse width  $\leq 300\mu s$ , Duty cycle  $\leq 2\%$
3. Guaranteed by design, not subject to production testing.

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## TYPICAL CHARACTERISTIC CURVES

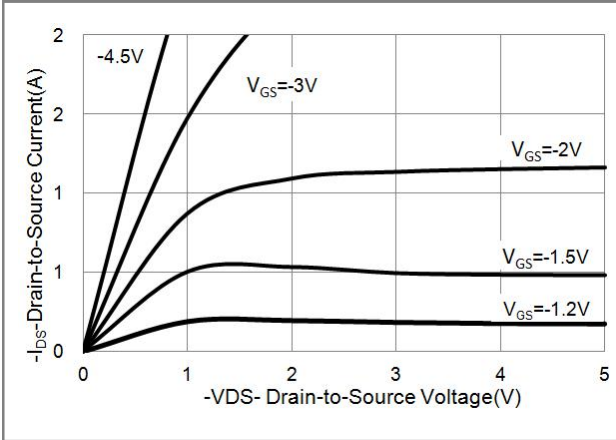


Fig.1 Output Characteristics

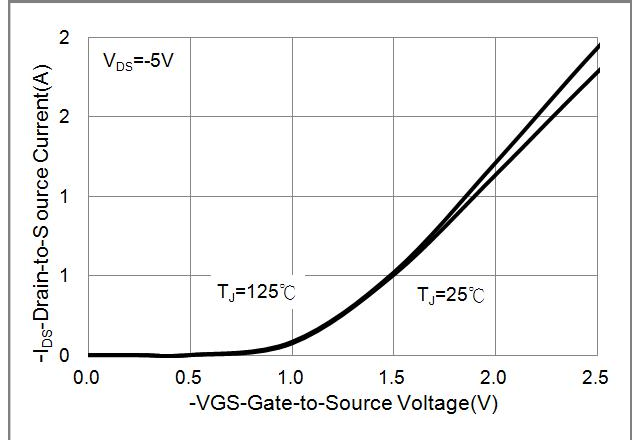


Fig.2 Transfer Characteristics

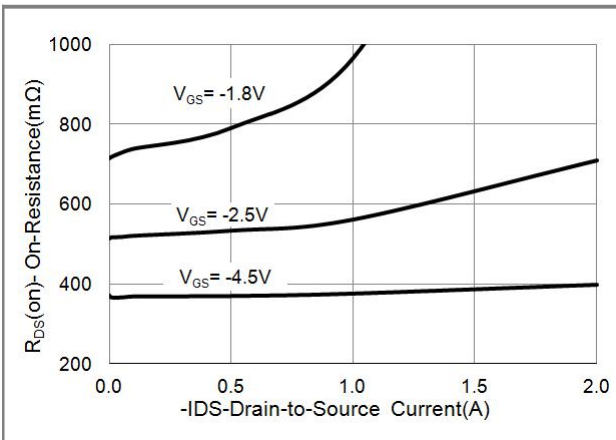


Fig.3 On-Resistance vs. Drain Current

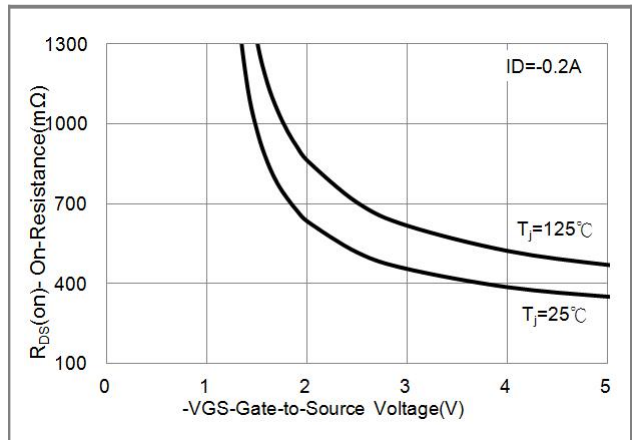


Fig.4 On-Resistance Variation with VGS.

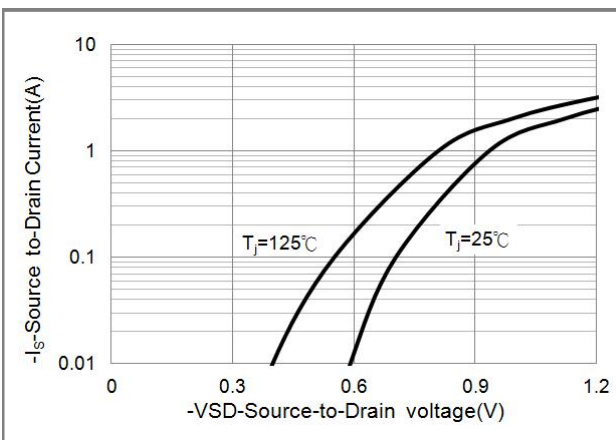


Fig.5 Body Diode Characteristics

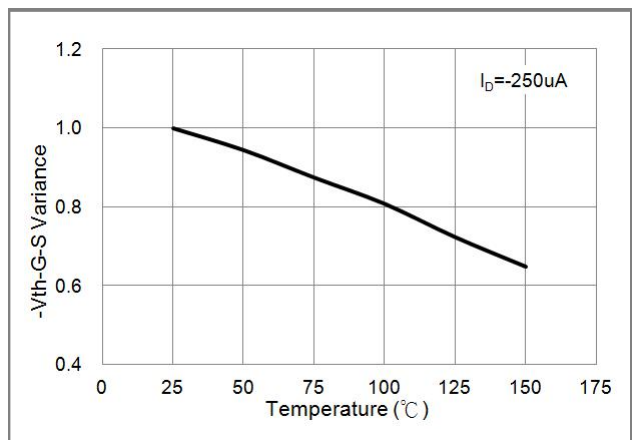


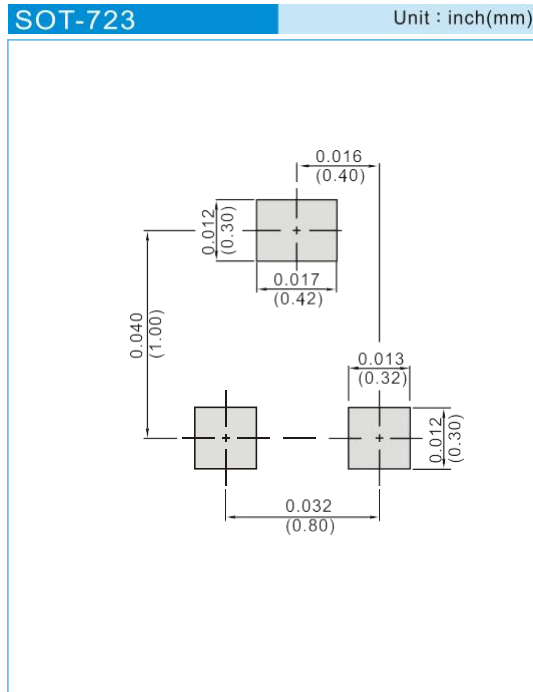
Fig.6 Threshold Voltage

# CSM3139S723

## PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing type
CSM3139S723	SOT-723	8K pcs / 7" reel

## MOUNTING PAD LAYOUT



## **CSM3139S723**

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