

CSM3401S23

30V P-Channel Enhancement Mode MOSFET

Voltage

-30 V

Current

-4A

Features

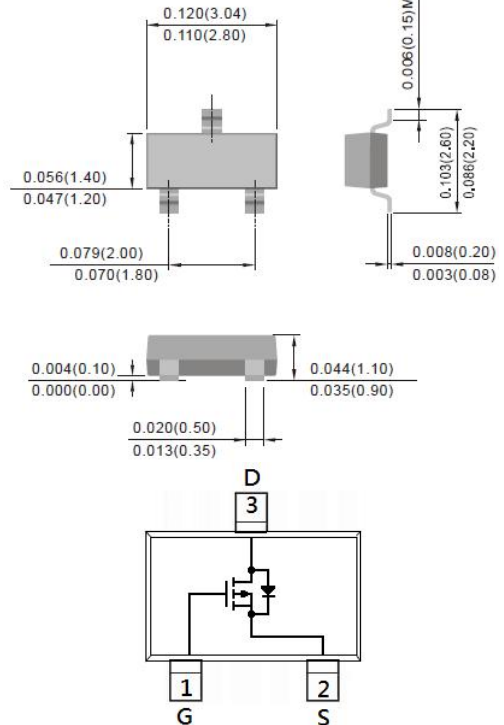
- $R_{DS(ON)}$, $V_{GS}@-10V$, $I_D@-3.6A < 54m\Omega$
- $R_{DS(ON)}$, $V_{GS}@-4.5V$, $I_D@-2.3A < 65m\Omega$
- $R_{DS(ON)}$, $V_{GS}@-2.5V$, $I_D@-1.4A < 86m\Omega$
- Advanced Trench Process Technology

Mechanical Data

- Case: SOT-23 Package
- Terminals: Solderable per MIL-STD-750, Method 2026

SOT-23

Unit: inch(mm)



Maximum Ratings and Thermal Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNITS
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	± 12	V
Continuous Drain Current		I_D	-4	A
Pulsed Drain Current		I_{DM}	-14.4	A
Power Dissipation	$T_a=25^\circ\text{C}$	P_D	1.25	W
	Derate above 25°C		10	mW/ $^\circ\text{C}$
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~150	$^\circ\text{C}$
Typical Thermal Resistance Junction to Ambient (Note 3)		$R_{\theta JA}$	100	$^\circ\text{C/W}$

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

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250uA	-30	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-0.5	-1	-1.3	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-3.6A	-	45	54	mΩ
		V _{GS} =-4.5V, I _D =-2.3A	-	52	65	
		V _{GS} =-2.5V, I _D =-1.4A	-	71	86	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V	-	-	-1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V	-	-	±100	nA
Dynamic (Note 5)						
Total Gate Charge	Q _g	V _{DS} =-15V, I _D =-3.6A, V _{GS} =-10V (Note 1,2)	-	19	-	nC
Gate-Source Charge	Q _{gs}		-	2.0	-	
Gate-Drain Charge	Q _{gd}		-	2.2	-	
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=1.0MHZ	-	994	-	pF
Output Capacitance	C _{oss}		-	78	-	
Reverse Transfer Capacitance	C _{rss}		-	58	-	
Turn-On Delay Time	td _(on)	V _{DD} =-15V, I _D =-3.6A, V _{GS} =-10V,	-	4.6	-	ns
Turn-On Rise Time	tr		-	22	-	
Turn-Off Delay Time	td _(off)		-	41	-	
Turn-Off Fall Time	tf	R _G =6Ω (Note 1,2)	-	25	-	
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _s	---	-	-	-1.5	A
Diode Forward Voltage	V _{SD}	I _s =-1.0A, V _{GS} =0V	-	-0.79	-1.2	V

NOTES :

1. Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$
2. Essentially independent of operating temperature typical characteristics.
3. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins mounted on a 1 inch FR-4 with 2oz. square pad of copper
4. The maximum current rating is package limited
5. Guaranteed by design, not subject to production testing

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TYPICAL CHARACTERISTIC CURVES

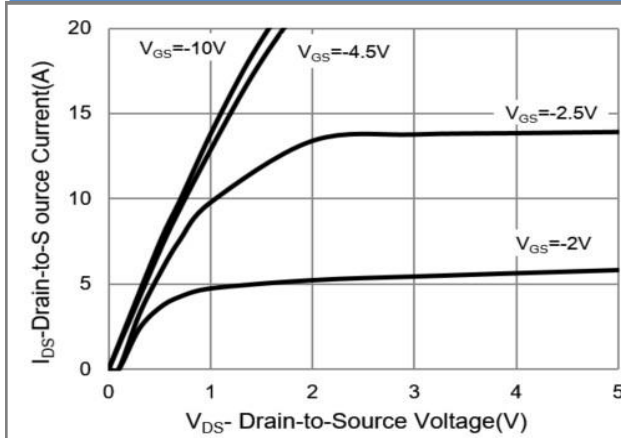


Fig.1 On-Region Characteristics

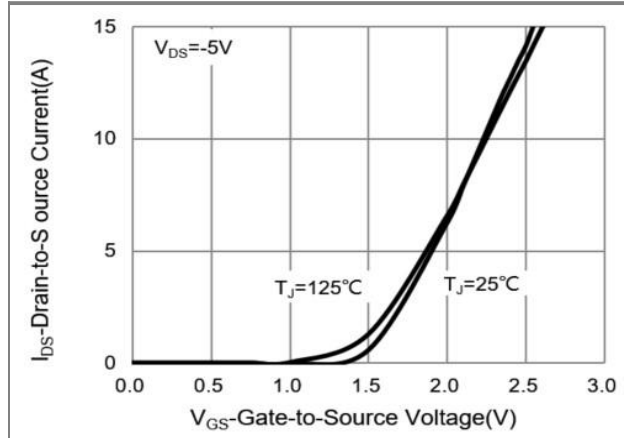


Fig.2 Transfer Characteristics

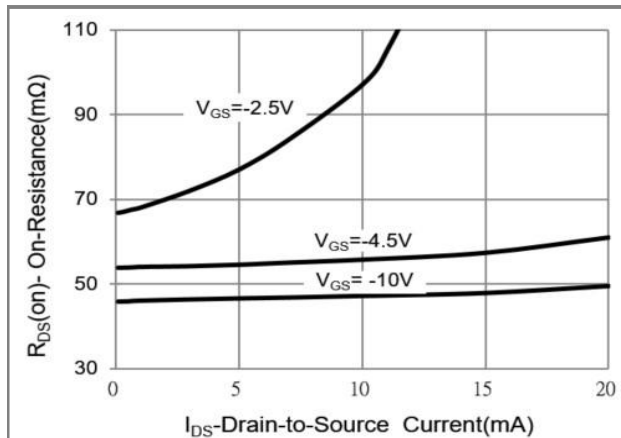


Fig.3 On-Resistance vs. Drain Current

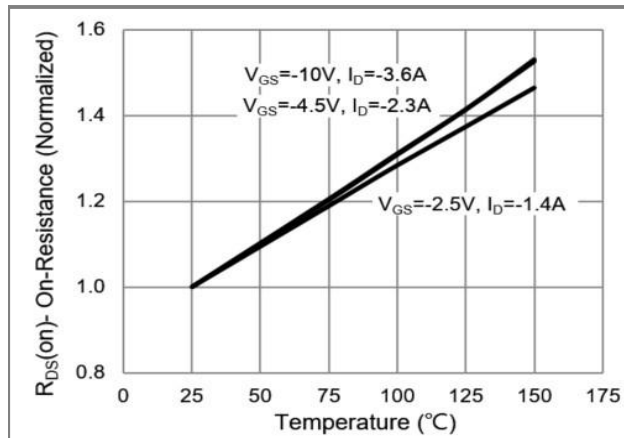


Fig.4 On-Resistance vs. Junction temperature

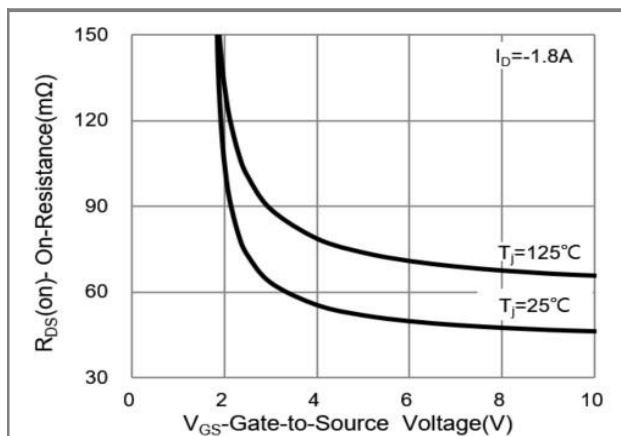


Fig.5 On-Resistance Variation with VGS.

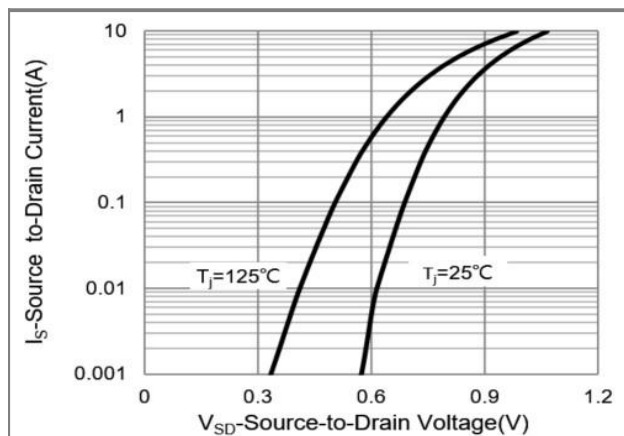


Fig.6 Body Diode Characteristics

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TYPICAL CHARACTERISTIC CURVES

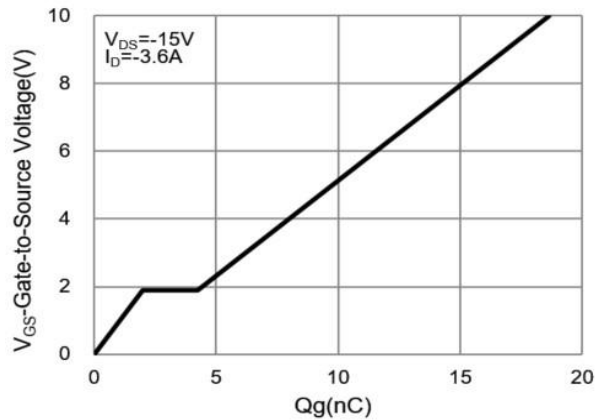


Fig.7 Gate-Charge Characteristics

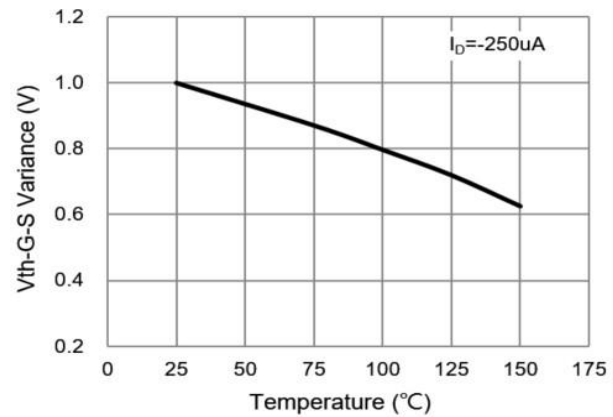


Fig.8 Threshold Voltage Variation with Temperature.

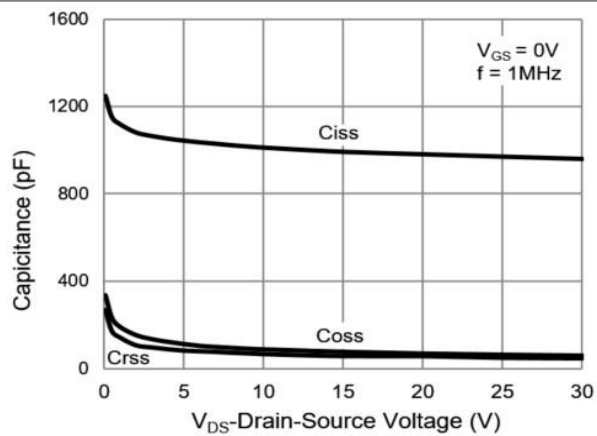


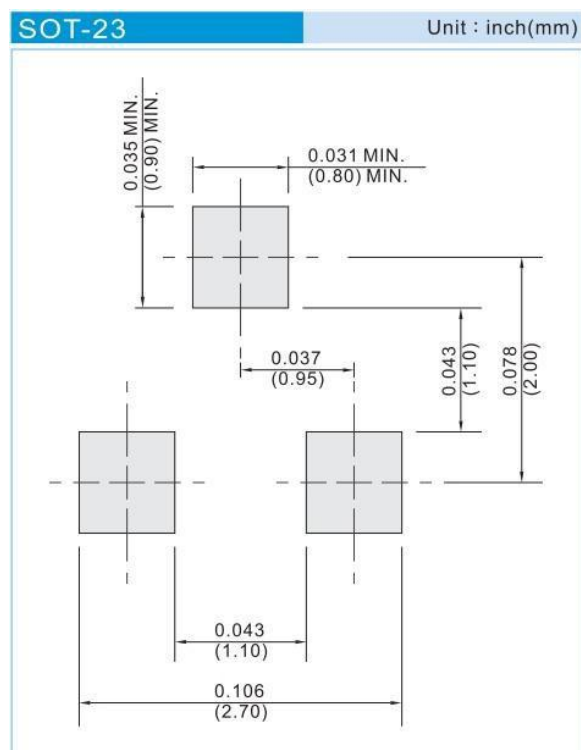
Fig.9 Capacitance vs. Drain-Source Voltage.

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PART NO PACKING CODE VERSION

Part No Packing Code	Package Type	Packing Type
CSM3401S23	SOT-23	3K pcs / 7" reel

MOUNTING PAD LAYOUT



CSM3401S23

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