

RoHS Compliant Product  
A suffix of "-C" specifies halogen & lead-free

## DESCRIPTION

These miniature surface mount MOSFETs reduce power loss conserve energy, making this device ideal for use in small power management circuitry.

## FEATURES

- Energy Efficient
- Low Threshold Voltage
- High-speed Switching
- Miniature Surface Mount Package Saves Board Space

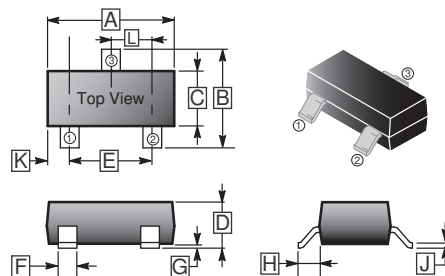
## MARKING

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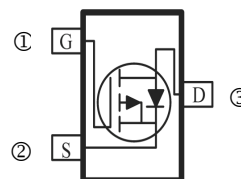
## PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch

### SOT-23



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.80	3.04	G	0.09	0.18
B	2.10	2.55	H	0.45	0.60
C	1.20	1.40	J	0.08	0.177
D	0.89	1.15	K	0.6 REF.	
E	1.78	2.04	L	0.89	1.02
F	0.30	0.50			



## ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V <sub>DS</sub>	-50	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current	I <sub>D</sub>	-0.13	A
Pulsed Drain Current <sup>1</sup>	I <sub>DM</sub>	-0.52	A
Power Dissipation	P <sub>D</sub>	225	mW
Lead Temperature for Soldering Purposes(1/8" from case for 5 s)	T <sub>L</sub>	260	°C
Operating Junction & Storage Temperature	T <sub>J</sub> , T <sub>STG</sub>	150, -55~150	°C
<b>Thermal Resistance Ratings</b>			
Thermal Resistance Junction-ambient <sup>2</sup>	R <sub>θJA</sub>	556	°C / W

**ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ\text{C}$  unless otherwise specified)

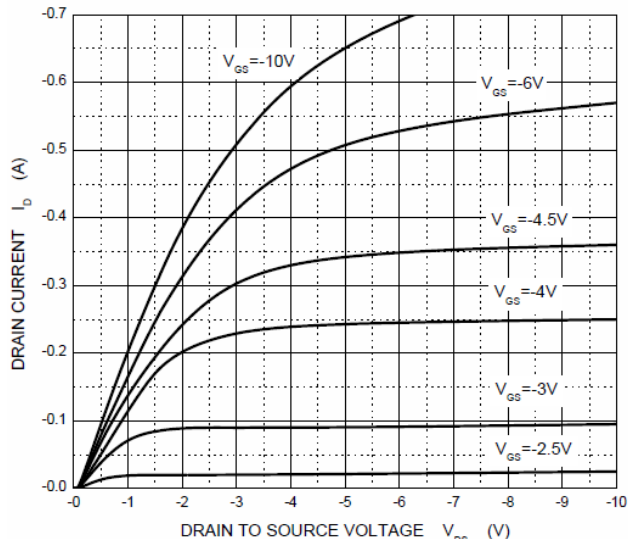
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	-50	-	-	V	$V_{GS}=0, I_D=-250\mu\text{A}$
Drain-Source Leakage Current	$I_{GSS}$	-	-	$\pm 5$	$\mu\text{A}$	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$
Gate-Source Leakage Current	$I_{DSS}$	-	-	-15	$\mu\text{A}$	$V_{GS}=0\text{V}, V_{DS}=-50\text{V}$
		-	-	-0.1		$V_{GS}=0\text{V}, V_{DS}=-25\text{V}$
Gate-Threshold Voltage <sup>3</sup>	$V_{GS(th)}$	-0.9	-1.6	-2	V	$V_{DS}=V_{GS}, I_D=-250\mu\text{A}$
Forward Transconductance <sup>1</sup>	$g_{fs}$	50	-	-	mS	$V_{DS}=-25\text{V}, I_D=-100\text{mA}$
Static Drain-Source On-Resistance <sup>3</sup>	$R_{DS(ON)}$	-	5.8	10	$\Omega$	$V_{GS}=-5\text{V}, I_D=-0.1\text{A}$
		-	4.5	8		$V_{GS}=-10\text{V}, I_D=0.1\text{A}$
Input Capacitance	$C_{iss}$	-	30	-	pF	$V_{GS}=0\text{V}$ $V_{DS}=-5\text{V}$ $f=1\text{MHz}$
Output Capacitance	$C_{oss}$	-	10	-		
Reverse Transfer Capacitance	$C_{rss}$	-	5	-		
Turn-on Delay Time	$T_{d(on)}$	-	2.5	-	nS	$V_{DD}=-15\text{V}$ $R_L=50\Omega,$ $I_D=-2.5\text{A}$
Rise Time	$T_r$	-	1	-		
Turn-off Delay Time	$T_{d(off)}$	-	16	-		
Fall Time	$T_f$	-	8	-		
<b>Source-Drain Diode</b>						
Continuous Current	$I_S$	-	-	-0.13	A	
Pulsed Current	$I_{SM}$	-	-	-0.52	A	
Diode Forward Voltage <sup>3</sup>	$V_{SD}$	-	-	-2.2	V	$I_S=-0.13\text{A}, V_{GS}=0\text{V}$

Notes:

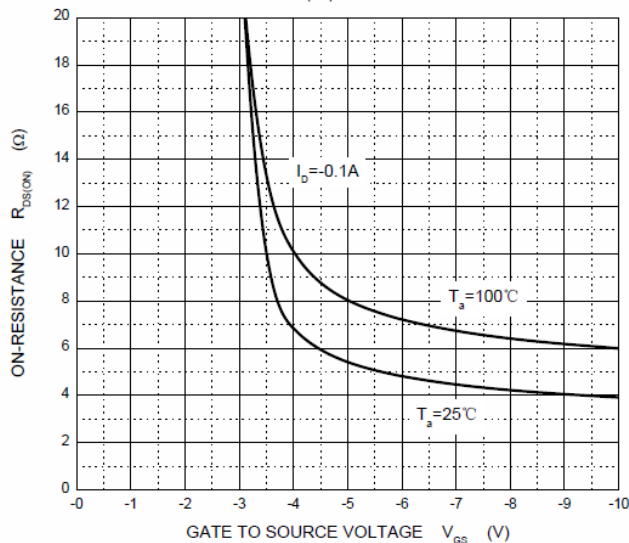
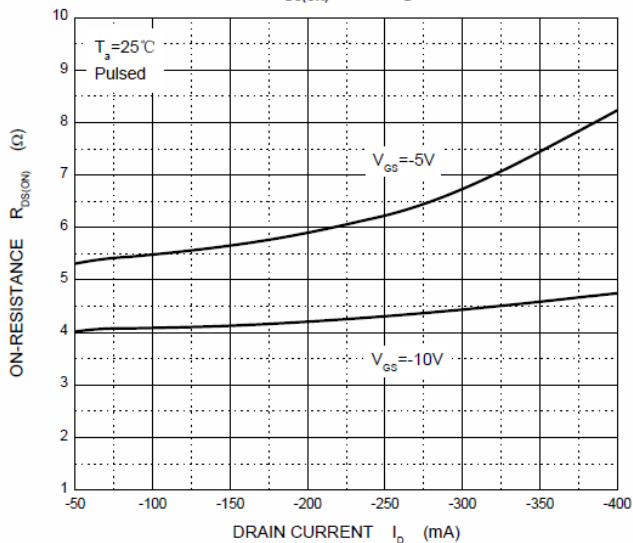
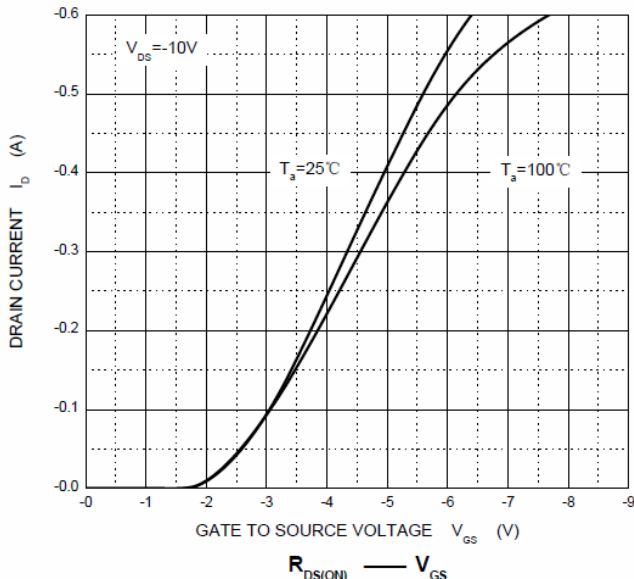
1. Repetitive rating: Pulse width limited by junction temperature.
2. Surface mounted on FR4 board  $t \leq 10\text{s}$ .
3. Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

**CHARACTERISTIC CURVES**

Output Characteristics



Transfer Characteristics



Threshold Voltage

