

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

FEATURES

- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage

APPLICATION

- Battery Switch
- DC/DC Converter

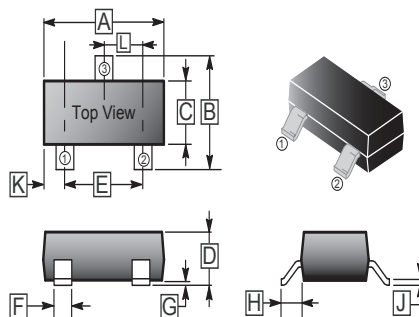
MARKING

S10

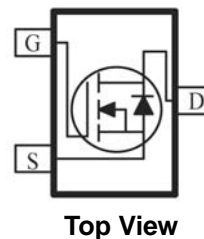
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7' inch

SOT-23



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.04	G	-	0.18
B	2.10	2.80	H	0.40	0.60
C	1.20	1.60	J	0.08	0.20
D	0.89	1.40	K	0.6	REF.
E	1.78	2.04	L	0.85	1.15
F	0.30	0.50			



ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Continuous Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	3	A
Pulsed Drain Current ¹	I_{DM}	10	A
Power Dissipation	P_D	0.35	W
Thermal Resistance, Junction to Ambient ²	$R_{\theta JA}$	357	$^\circ\text{C/W}$
Junction and Storage Temperature Range	T_J, T_{STG}	150, -55~150	$^\circ\text{C}$

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
STATIC CHARACTERISTICS						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	60	-	-	V	$V_{GS} = 0, I_D = 250\mu\text{A}$
Gate-Body Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}=\pm 20\text{V}, V_{DS}=0$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	$V_{GS}=0, V_{DS}=60\text{V}$
Gate Threshold Voltage ³	$V_{GS(th)}$	0.5	-	2	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
Static Drain-Source On Resistance ³	$R_{DS(ON)}$	-	-	105	m Ω	$V_{GS}=10\text{V}, I_D=3\text{A}$
		-	-	125		$V_{GS}=4.5\text{V}, I_D=3\text{A}$
Forward Transconductance ³	g_{FS}	1.4	-	-	S	$V_{DS}=15\text{V}, I_D=2\text{A}$
Body diode forward voltage ³	V_{SD}	-	-	1.2	V	$V_{GS}=0, I_S=3\text{A}$
Dynamic Characteristics ⁴						
Input Capacitance	C_{iss}	-	247	-	pF	$V_{DS}=30\text{V},$ $V_{GS}=0,$ $f=1\text{MHz}$
Output Capacitance	C_{oss}	-	34	-		
Reverse Transfer Capacitance	C_{rss}	-	19.5	-		
Switching Characteristics ⁴						
Turn-On Delay Time	$t_{d(ON)}$	-	6	-	nS	$V_{DD}=30\text{V},$ $V_{GS}=10\text{V},$ $I_D=1.5\text{A},$ $R_{GEN}=1\Omega,$
Rise time	t_r	-	15	-		
Turn-Off Delay Time	$t_{d(OFF)}$	-	15	-		
Fall time	t_f	-	10	-		
Total Gate Charge	Q_g	-	6	-	nC	$I_D= 3\text{A}$ $V_{DS}= 30\text{V}$ $V_{GS}= 4.5\text{V}$
Gate-Source Charge	Q_{gs}	-	1	-		
Gate-Drain Charge	Q_{gd}	-	1.3	-		

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 $\leq 0.5\%$.
4. Guaranteed by design, not subject to producing.

CHARACTERISTIC CURVES

