

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

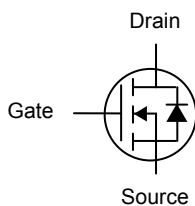
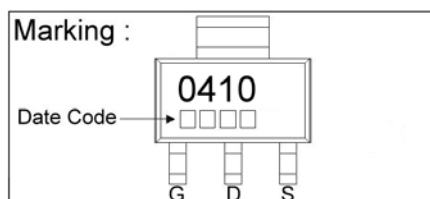
DESCRIPTION

The SSM0410 provide the designer with best combination of fast switching, ruggedized device design, low on resistance and cost-effectiveness. The SOT-223 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

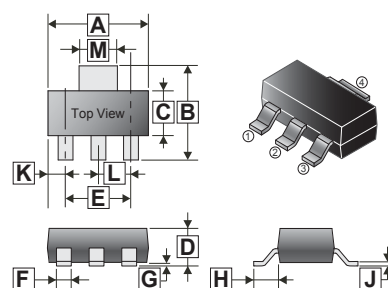
FEATURES

- Fast Switching
- Low On-resistance
- Logic Level Compatible

MARKING



SOT-223



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.20	6.70	G	-	0.10
B	6.70	7.30	H	-	-
C	3.30	3.70	J	0.25	0.35
D	1.42	1.90	K	-	-
E	4.50	4.70	L	2.30	REF.
F	0.60	0.82	M	2.90	3.10

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

PARAMETER	SYMBOL	RATING	UNIT
Drain – Source Voltage	V_{DS}	100	V
Gate – Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ³ , $V_{GS}@5V$	I_D	$T_A = 25^\circ\text{C}$	3.5
		$T_A = 70^\circ\text{C}$	2.2
Pulsed Drain Current ^{1,2}	I_{DM}	14	A
Total Power Dissipation	P_D	2.7	W
Linear Derating Factor		0.02	W/ $^\circ\text{C}$
Operating Junction & Storage Temperature Range	T_J, T_{STG}	-65~150	$^\circ\text{C}$
THERMAL DATA			
Maximum Junction–Ambient ³	$R_{\theta JA}$	45	$^\circ\text{C}/\text{W}$

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

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITION
Drain-Source Breakdown Voltage	BV_{DSS}	100	-	-	V	$V_{GS}=0V, I_D=1mA$
Gate Threshold Voltage	$V_{GS(TH)}$	1.0	-	2.5	V	$V_{DS}=10V, I_D=1mA$
Forward Transconductance	g_{FS}	-	4.0	-	S	$V_{DS}=10V, I_D=2.5A$
Gate-Source Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}=\pm 20V$
Drain-Source Leakage Current	I_{DSS}	-	-	10	μA	$V_{DS}=100V, V_{GS}=0V$
Drain-Source On Resistance	$R_{DS(ON)}$	-	-	0.22	Ω	$V_{GS}=10V, I_D=2.6A$
		-	-	0.28		$V_{GS}=5.0V, I_D=1.7A$
Total Gate Charge ²	Q_g	-	11.2	-	nC	$V_{GS}=5V$
Gate-Source Charge	Q_{gs}	-	4.4	-		$V_{DS}=80V$
Gate-Drain ("Miller") Charge	Q_{gd}	-	3.0	-		$I_D=3.5A$
Turn-on Delay Time ²	$T_{d(ON)}$	-	9	-	nS	$V_{DD}=30V$
Rise Time	T_r	-	9.4	-		$V_{GS}=10V$
Turn-off Delay Time	$T_{d(OFF)}$	-	26.8	-		$I_D=1A$
Fall Time	T_f	-	2.6	-		$R_G=6\Omega, R_L=30\Omega$
Input Capacitance	C_{ISS}	-	975	-	pF	$V_{DS}=25V$
Output Capacitance	C_{OSS}	-	38	-		$V_{GS}=0V$
Reverse Transfer Capacitance	C_{RSS}	-	27	-		$f=1MHz$
SOURCE-DRAIN DIODE						
Forward On Voltage ³	V_{SD}	-	-	1.5	V	$V_{GS}=0V, I_S=3.5A$

Note:

1. Pulse width limited by Maximum junction temperature.
2. Pulse width $\leq 300 \mu s$, Duty cycle $\leq 2\%$
3. Surface mounted on 1 in² copper pad of FR4 board; 120°C/W when mounted on Min. copper pad.

CHARACTERISTIC CURVES

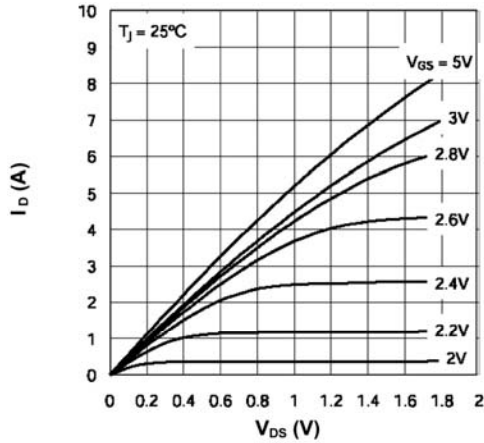


Fig 1. Typical Output Characteristics

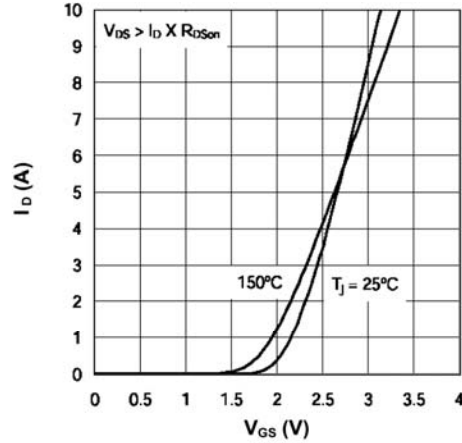


Fig 2. Transfer Characteristics

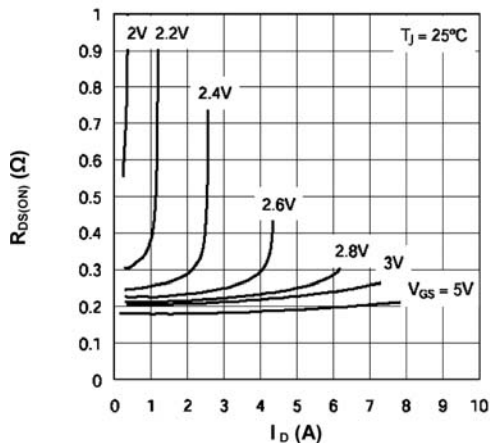


Fig 3. On-Resistance vs. Drain Current and Gate Voltage

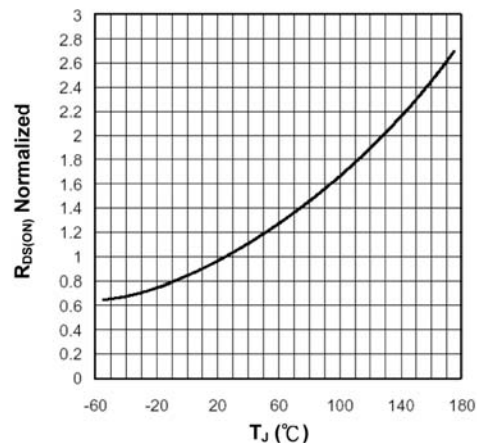


Fig 4. On-Resistance vs. Junction Temperature

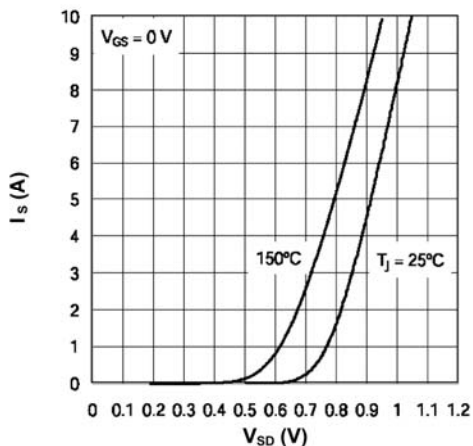


Fig 5. Body Diode Characteristics

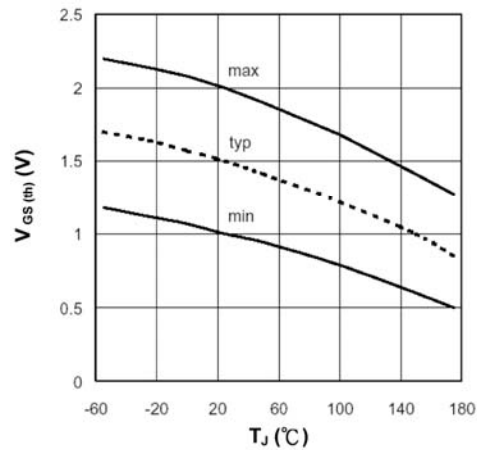


Fig 6. Gate-Source Threshold Voltage vs. Junction Temperature

CHARACTERISTIC CURVES

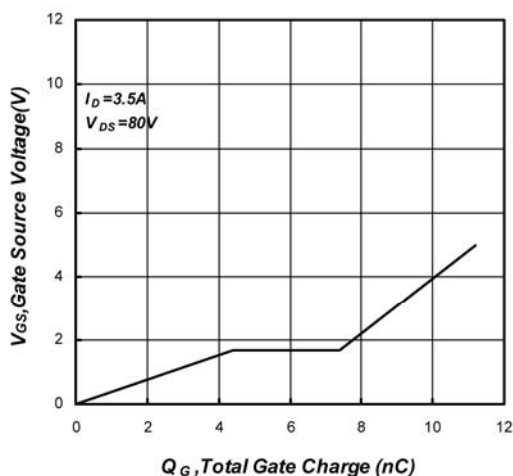


Fig 7. Gate Charge Characteristics

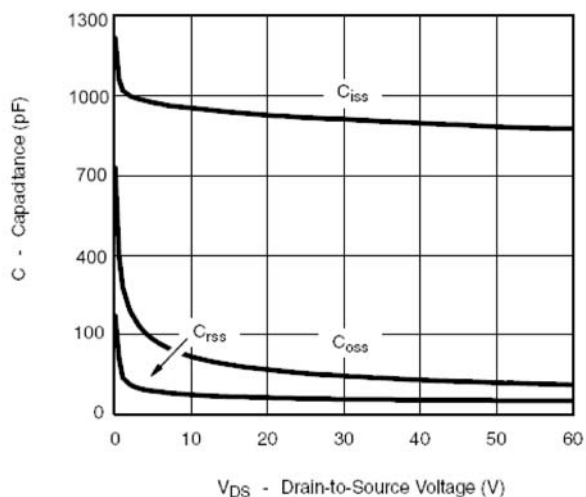


Fig 8. Typical Capacitance Characteristics

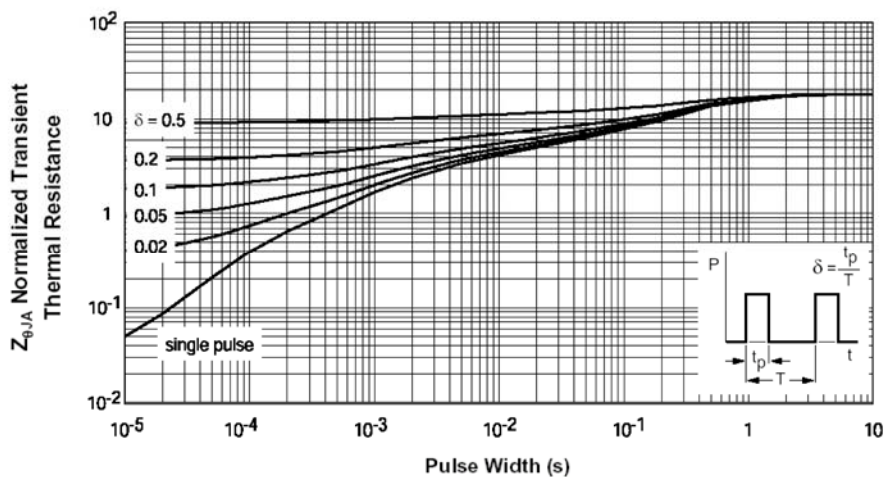


Fig 9. Normalized Maximum Transient Thermal Impedance