

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

DESCRIPTION

The SMS3415 provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness. The SOT-23 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

FEATURES

- Lower Gate Charge
- Simple Drive Requirement
- Fast Switching Characteristic

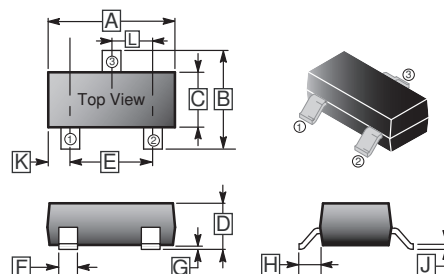
MARKING

R15

PACKAGE INFORMATION

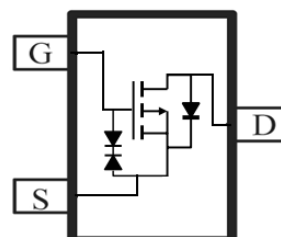
Package	MPQ	Leader Size
SOT-23	3K	7 inch

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			

Top View



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current ($t \leq 10s$)	I_D	-4	A
Maximum Power Dissipation ($t \leq 10s$)	P_D	0.35	W
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	357	$^\circ\text{C} / \text{W}$
Operating Junction & Storage Temperature	T_J, T_{STG}	150, -55~150	$^\circ\text{C}$

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Teat Conditions
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	-20	-	-	V	V _{GS} =0, I _D = -250μA
Gate-Threshold Voltage	V _{GS(th)}	-0.3	-	-1	V	V _{DS} =V _{GS} , I _D = -250μA
Gate-Source Leakage Current	I _{GSS}	-	-	±10	μA	V _{GS} = ±8V, V _{DS} =0
		-	-	±1		V _{GS} = ±4.5V, V _{DS} =0
Drain-Source Leakage Current	I _{DSS}	-	-	-1	μA	V _{DS} = -16V, V _{GS} =0
Forward Transconductance ²	g _{fs}	8	-	-	S	V _{DS} = -5V, I _D = -4A
Diode Forward Voltage ²	V _{SD}	-	-	-1	V	I _S = -1A, V _{GS} =0
Static Drain-Source On-Resistance ¹	R _{DS(ON)}	-	-	50	mΩ	V _{DS} = -4.5V, I _D =-4A
		-	-	60		V _{GS} = -2.5V, I _D = -4A
		-	-	73		V _{GS} = -1.8V, I _D = -2A
Switching Parameters						
Total Gate Charge	Q _g	-	17.2	-	nC	I _D = -4A V _{DS} = -10V V _{GS} = -4.5V
Gate-Source Charge	Q _{gs}	-	1.3	-		
Gate-Drain Change	Q _{gd}	-	4.5	-		
Turn-on Delay Time	T _{d(on)}	-	9.5	-	nS	V _{DS} = -10V V _{GS} = -4.5V R _{GEN} =3Ω R _L =2.5Ω
Rise Time	T _r	-	17	-		
Turn-off Delay Time	T _{d(off)}	-	94	-		
Fall Time	T _f	-	35	-		
Dynamic Parameters ³						
Input Capacitance	C _{iss}	-	1450	-	pF	V _{GS} =0 V _{DS} = -10V f =1.0MHz
Output Capacitance	C _{oss}	-	205	-		
Reverse Transfer Capacitance	C _{rss}	-	160	-		
Gate Resistance	R _g	-	6.5	-	Ω	V _{GS} = V _{DS} =0, f =1.0MHz

Note:

1. Repetitive rating, pulse width limited by junction temperature.
2. Pulse Test : Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
3. These parameters have no way to verify.

CHARACTERISTIC CURVES

