

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

DESCRIPTION

The SMS3407 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

3407

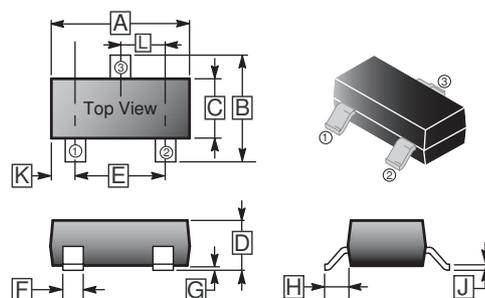
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch

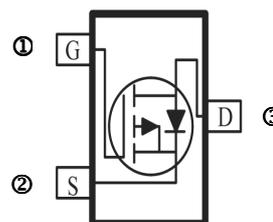
ORDER INFORMATION

Part Number	Type
SMS3407	Lead (Pb)-free
SMS3407-C	Lead (Pb)-free and Halogen-free

SOT-23



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0.09	0.18
B	2.10	2.65	H	0.35	0.65
C	1.20	1.40	J	0.08	0.20
D	0.89	1.17	K	0.6 REF.	
E	1.78	2.04	L	0.95 BSC.	
F	0.30	0.50			



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

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	I_D	-4.1	A
Pulsed Drain Current ³	I_{DM}	-10	A
Continuous Source Current (Diode Conduction) ¹	I_S	-3	A
Power Dissipation ¹	P_D	$T_A=25^\circ\text{C}$	1.4
		$T_A=70^\circ\text{C}$	0.9
Operating Junction & Storage Temperature	T_J, T_{STG}	150, -55~150	$^\circ\text{C}$
Thermal Resistance Ratings			
Thermal Resistance Junction-ambient ($t \leq 10\text{s}$) ¹	$R_{\theta JA}$	89	$^\circ\text{C/W}$
Thermal Resistance Junction-ambient ²		357	

Notes:

1. The data tested by surface mounted on a 1 inch² FR4 board with 2OZ copper.
2. Surface mounted on min. copper pad.
3. Pulse width limited by Max. junction temperature.

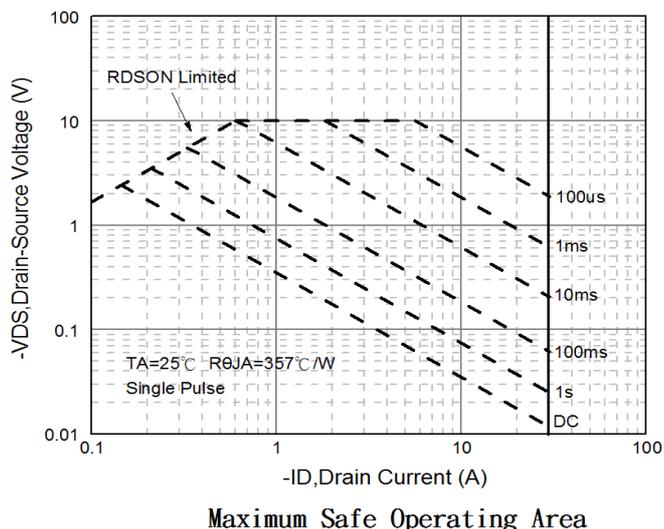
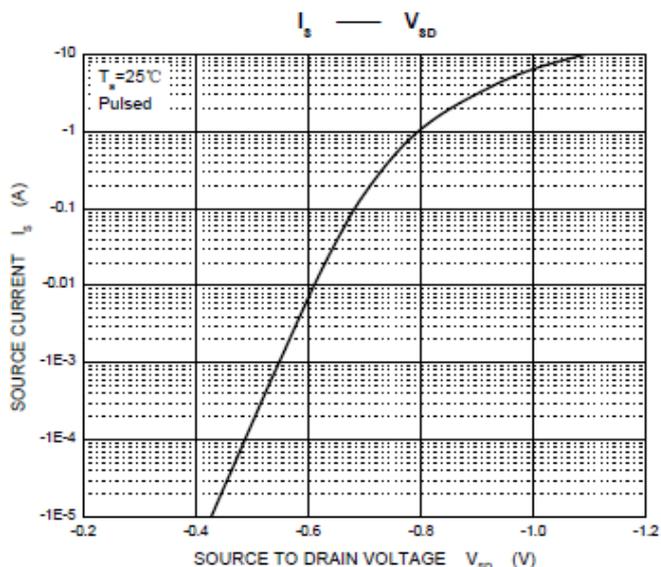
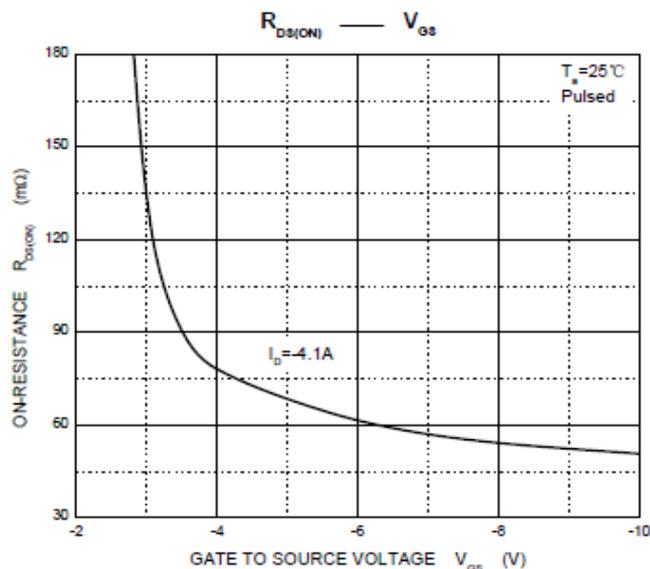
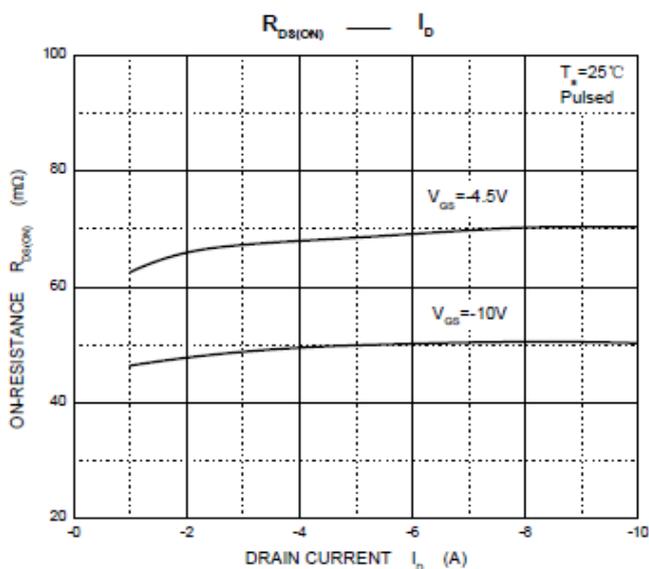
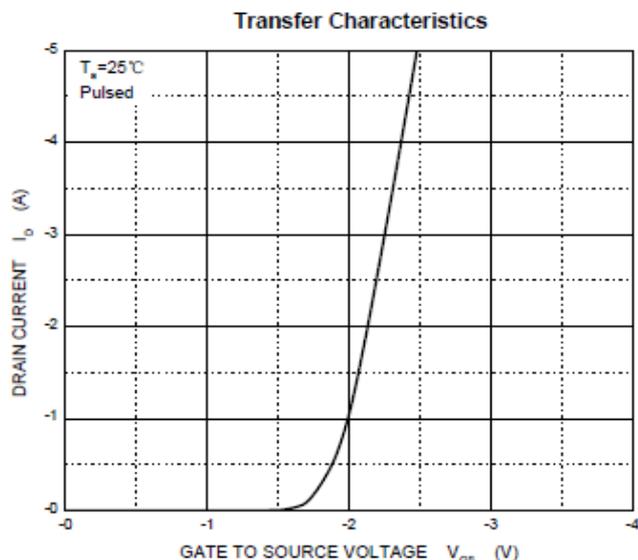
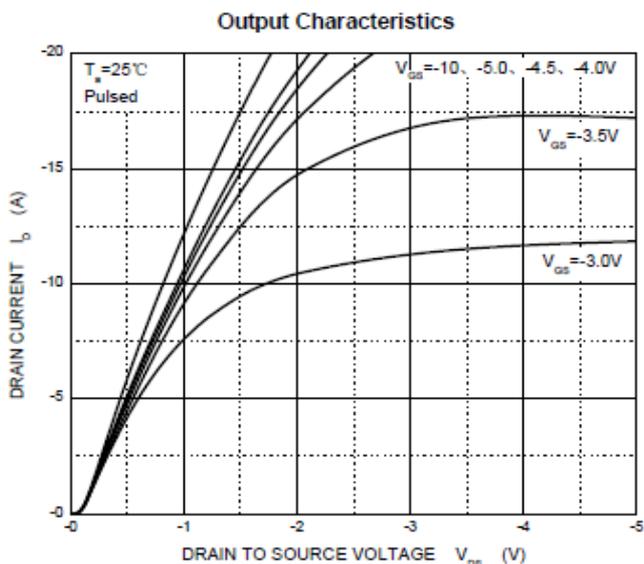
ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	-30	-	-	V	$V_{GS}=0, I_D=-250\mu\text{A}$
Gate-Threshold Voltage	$V_{GS(th)}$	-1	-1.4	-3	V	$V_{DS}=V_{GS}, I_D=-250\mu\text{A}$
Gate-Source Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}=\pm 20\text{V}, V_{DS}=0$
Drain-Source Leakage Current	I_{DSS}	-	-	-1	μA	$V_{DS}=-24\text{V}, V_{GS}=0$
Forward Transconductance ¹	g_{fs}	5.5	-	-	S	$V_{DS}=-5\text{V}, I_D=-4\text{A}$
Static Drain-Source On-Resistance ¹	$R_{DS(ON)}$	-	50	60	m Ω	$V_{GS}=-10\text{V}, I_D=-4.1\text{A}$
		-	68	87		$V_{GS}=-4.5\text{V}, I_D=-3\text{A}$
Dynamic Parameters						
Input Capacitance	C_{iss}	-	700	-	pF	$V_{GS}=0$ $V_{DS}=-15\text{V}$ $f=1\text{MHz}$
Output Capacitance	C_{oss}	-	120	-		
Reverse Transfer Capacitance	C_{rss}	-	75	-		
Switching Parameters						
Turn-on Delay Time	$T_{d(on)}$	-	8.6	-	nS	$V_{GS}=-10\text{V}$ $V_{DS}=-15\text{V}$ $R_{GEN}=3\Omega$ $R_L=3.6\Omega$
Rise Time	T_r	-	5	-		
Turn-off Delay Time	$T_{d(off)}$	-	28.2	-		
Fall Time	T_f	-	13.5	-		
Source-Drain Diode						
Forward Voltage ¹	V_{SD}	-	-	-1	V	$V_{GS}=0, I_S=-1\text{A}$

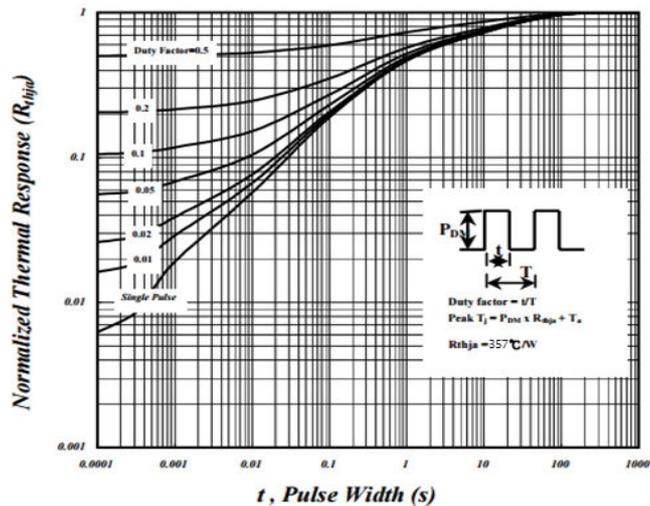
Note:

1. Pulse Test: Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

CHARACTERISTIC CURVES



CHARACTERISTIC CURVES



Effective Transient Thermal Impedance