

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

## DESCRIPTION

SMS3404 uses advanced trench technology to provide excellent  $R_{DS(ON)}$  and low gate charge. This device is suitable for the use as a load switch or in PWM applications. The source leads are separated to allow a Kelvin connection to the source, which may be used to bypass the source inductance.

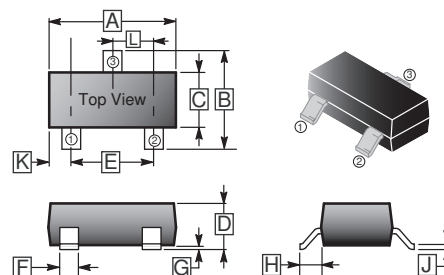
## FEATURES

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

## MARKING

R4

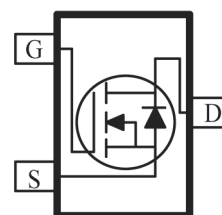
## SOT-23



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			

## PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current ( $t \leq 10\text{s}$ )	$I_D$	5.8	A
Pulsed Drain Current <sup>1</sup>	$I_{DM}$	30	A
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	$^{\circ}\text{C} / \text{W}$
Operating Junction and Storage Temperature	$T_J, T_{STG}$	150, -55~150	$^{\circ}\text{C}$

Notes:

1. Repetitive rating : Pulse width is limited by the maximum junction temperature.

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

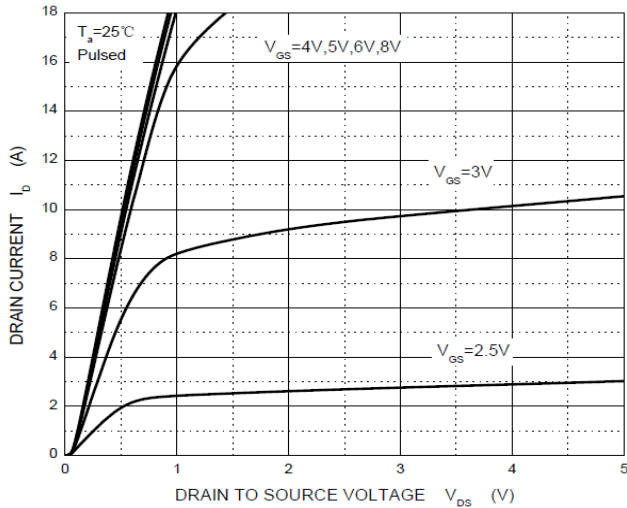
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	30	-	-	V	$V_{GS}=0, I_D=250\mu\text{A}$
Drain-Source Leakage Current	$I_{DSS}$	-	-	1	$\mu\text{A}$	$V_{DS}=30\text{V}, V_{GS}=0$
Gate-Source Leakage Current	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{GS}=\pm 20\text{V}, V_{DS}=0$
Gate-Threshold Voltage	$V_{GS(th)}$	1	1.4	3	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$
Static Drain-Source On-Resistance <sup>1</sup>	$R_{DS(ON)}$	-	23	30	m $\Omega$	$V_{DS}=10\text{V}, I_D=5.8\text{A}$
		-	31	42		$V_{GS}=4.5\text{V}, I_D=4.8\text{A}$
Forward Transconductance <sup>1</sup>	$g_{fs}$	5	-	-	S	$V_{DS}=5\text{V}, I_D=5.8\text{A}$
Diode Forward Voltage	$V_{SD}$	-	-	1	V	$I_S=1\text{A}$
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	-	820	-	pF	$V_{GS}=0$ $V_{DS}=15\text{V}$ $f=1.0\text{MHz}$
Output Capacitance	$C_{oss}$	-	118	-		
Reverse Transfer Capacitance	$C_{rss}$	-	85	-		
Gate Resistance	$R_g$	-	-	1.5	$\Omega$	$V_{GS}=V_{DS}=0, f=1.0\text{MHz}$
<b>Switching Characteristics</b>						
Turn-on Delay Time	$T_{d(on)}$	-	6.5	-	nS	$V_{DS}=15\text{V}$ $V_{GS}=10\text{V}$ $R_{GEN}=3\Omega$ $R_L=2.6\Omega$
Rise Time	$T_r$	-	3.1	-		
Turn-off Delay Time	$T_{d(off)}$	-	15.1	-		
Fall Time	$T_f$	-	2.7	-		

Notes:

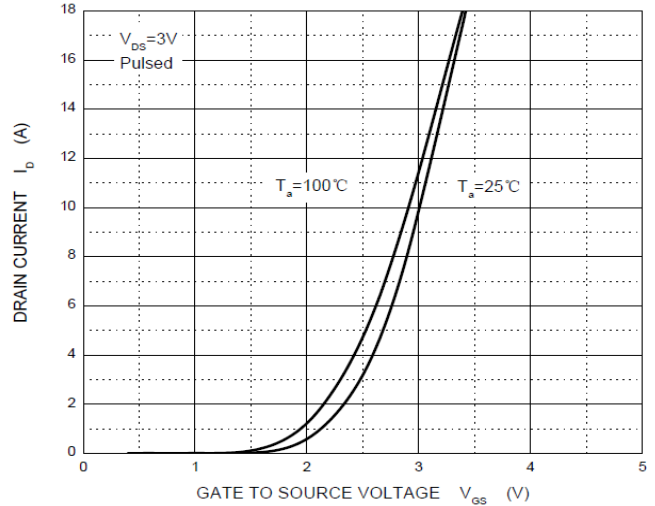
1. Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 0.5\%$ .

**CHARACTERISTIC CURVES**

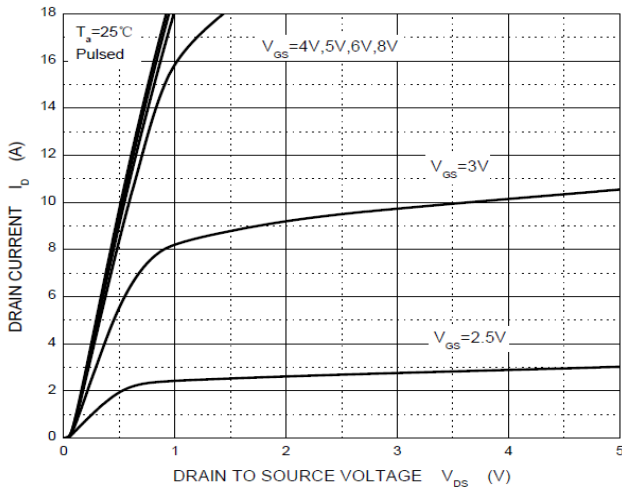
**Output Characteristics**



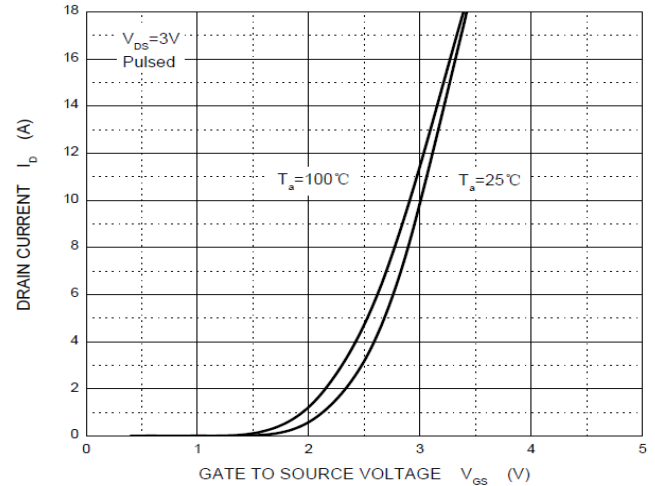
**Transfer Characteristics**



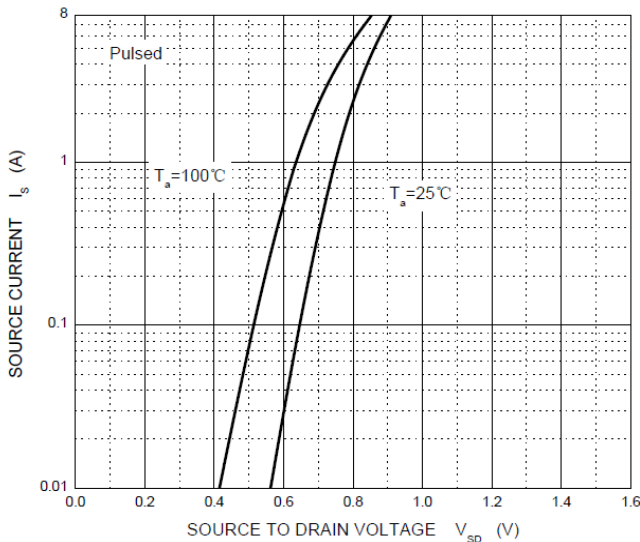
**Output Characteristics**



**Transfer Characteristics**



**$I_S$  —  $V_{SD}$**



**Threshold Voltage**

