

STT3524C

N-Ch: 4.1 A, 20 V, $R_{DS(ON)}$ 47 m Ω

P-Ch: -3.2 A, -20 V, $R_{DS(ON)}$ 79 m Ω

N & P-Channel Enhancement Mode Mos.FET

RoHS Compliant Product

A suffix of "-C" specifies halogen and lead-free

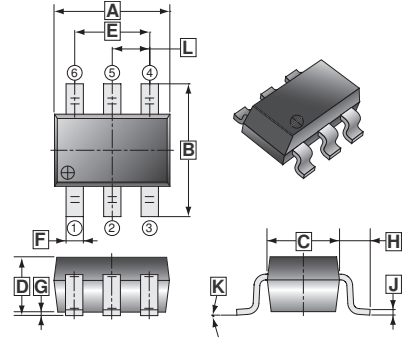
DESCRIPTION

These miniature surface mount MOSFETs utilize high cell density process. Low $R_{DS(on)}$ assures minimal power loss and conserves energy, making this device ideal for use in power management circuitry. Typical applications are DC-DC converters, power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

FEATURES

- Low $R_{DS(on)}$ Provides Higher Efficiency And Extends Battery Life.
- Miniature TSOP-6 Surface Mount Package Saves Board Space.

TSOP-6

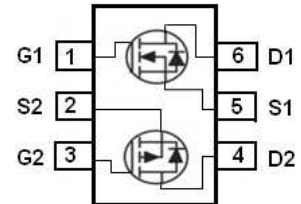


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0	0.10
B	2.60	3.00	H	0.60	REF.
C	1.40	1.80	J	0.12	REF.
D	1.10	MAX.	K	0°	10°
E	1.90	REF.	L	0.95	REF.
F	0.30	0.50			

PACKAGE INFORMATION

Package	MPQ	Leader Size
TSOP-6	3K	7' inch

Top View



ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Ratings		Unit	
		N-Channel	P-Channel		
Drain-Source Voltage	V_{DS}	20	-20	V	
Gate-Source Voltage	V_{GS}	± 8		V	
Continuous Drain Current ¹	I_D	$T_A=25^\circ\text{C}$	4.1	-3.2	A
		$T_A=70^\circ\text{C}$	3.3	-2.6	
Pulsed Drain Current ²	I_{DM}	8	-8	A	
Continuous Source Current (Diode Conduction) ¹	I_S	1.05	-1.05	A	
Power Dissipation ¹	P_D	$T_A=25^\circ\text{C}$	1.15		W
		$T_A=70^\circ\text{C}$	0.7		
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ 150		$^\circ\text{C}$	

THERMAL RESISTANCE RATINGS

Parameter	Symbol	N-Channel		P-Channel		Unit	
		Typ.	Max.	Typ.	Max.		
Maximum Junction to Ambient ¹	$t \leq 10$ sec	$R_{\theta JA}$	93	110	93	110	$^\circ\text{C} / \text{W}$
	Steady State		130	150	130	150	

Notes:

- 1 Surface Mounted on 1" x 1" FR4 Board.
- 2 Pulse width limited by maximum junction temperature.

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions	
Gate-Threshold Voltage	N-Ch	0.4	-	-	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	
	P-Ch	-0.4	-	-		$V_{DS}=V_{GS}, I_D=-250\mu\text{A}$	
Gate-Body Leakage Current	N-Ch	-	-	100	uA	$V_{DS}=0, V_{GS}=8\text{V}$	
	P-Ch	-	-	-100		$V_{DS}=0, V_{GS}=-8\text{V}$	
Zero Gate Voltage Drain Current	N-Ch	-	-	1	uA	$V_{DS}=16\text{V}, V_{GS}=0\text{V}$	
	P-Ch	-	-	-1		$V_{DS}=-16\text{V}, V_{GS}=0\text{V}$	
	N-Ch	-	-	10		$V_{DS}=16\text{V}, V_{GS}=0\text{V}, T_J=55^\circ\text{C}$	
	P-Ch	-	-	-10		$V_{DS}=-16\text{V}, V_{GS}=0\text{V}, T_J=55^\circ\text{C}$	
On-State Drain Current ¹	N-Ch	5	-	-	A	$V_{DS}=5\text{V}, V_{GS}=4.5\text{V}$	
	P-Ch	-5	-	-		$V_{DS}=-5\text{V}, V_{GS}=-4.5\text{V}$	
Drain-Source On-Resistance ¹	N-Ch	-	-	47	m Ω	$V_{GS}=4.5\text{V}, I_D=4.1\text{A}$	
	P-Ch	-	-	79		$V_{GS}=-4.5\text{V}, I_D=-3.2\text{A}$	
	N-Ch	-	-	55		$V_{GS}=2.5\text{V}, I_D=3.8\text{A}$	
	P-Ch	-	-	110		$V_{GS}=-2.5\text{V}, I_D=-2.7\text{A}$	
Forward Transconductance ¹	N-Ch	-	10	-	S	$V_{DS}=5\text{V}, I_D=4.1\text{A}$	
	P-Ch	-	5	-		$V_{DS}=-5\text{V}, I_D=-3.2\text{A}$	
Diode Forward Voltage ¹	N-Ch	-	0.80	-	S	$I_S=1.05\text{A}, V_{GS}=0$	
	P-Ch	-	-0.83	-		$I_S=-1.05\text{A}, V_{GS}=0$	
DYNAMIC ²							
Total Gate Charge	N-Ch	Q_g	-	7.5	-	nC	N-Channel $V_{DS}=15\text{V}, V_{GS}=4.5\text{V},$ $I_D=4.1\text{A}$
	P-Ch		-	3.8	-		
Gate-Source Charge	N-Ch	Q_{gs}	-	0.6	-		
	P-Ch		-	0.6	-		
Gate-Drain Charge	N-Ch	Q_{gd}	-	1.0	-		P-Channel $V_{DS}=-15\text{V}, V_{GS}=-4.5\text{V},$ $I_D=-3.2\text{A}$
	P-Ch		-	1.5	-		
Turn-on Delay Time	N-Ch	$T_{d(on)}$	-	5	-	nS	N-Channel $V_{DD}=15\text{V}, R_{GEN}=15\Omega,$ $V_{GS}=4.5\text{V}, I_D=1\text{A}$
	P-Ch		-	5	-		
Rise Time	N-Ch	T_r	-	12	-		
	P-Ch		-	15	-		
Turn-off Delay Time	N-Ch	$T_{d(off)}$	-	13	-		P-Channel $V_{DD}=-15\text{V}, R_{GEN}=15\Omega,$ $V_{GS}=-4.5\text{V}, I_D=-1\text{A}$
	P-Ch		-	20	-		
Fall Time	N-Ch	T_f	-	7	-		
	P-Ch		-	20	-		

Notes

- 1 Pulse test : $PW \leq 300\text{ us}$ duty cycle $\leq 2\%$.
- 2 Guaranteed by design, not subject to production testing.