



Micro Commercial Components



Micro Commercial Components  
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# SI4153

## Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Low RDS(on) Improving System Efficiency
- ESD Protected Gate
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Halogen free available upon request by adding suffix "-HF"

## Mechanical Data

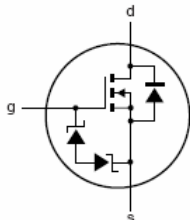
- Case: SOT-523, Molded Plastic
- Terminal Connections: See Diagram

## Maximum Ratings

- Operating Temperature: -55°C to +150°C
- Storage Temperature: -55°C to +150°C

Parameter	Symbol	Value	Unit
Drain-Source-Voltage	$V_{DSS}$	20	V
Gate-Source-Voltage	$V_{GSS}$	±6	V
Continuous Drain Current	$I_D$	0.915	A
Thermal Resistance, Junction-to-Ambient	$R_{thJA}$	833	°C/W
Total Power Dissipation	$P_D$	150	mW

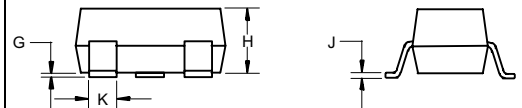
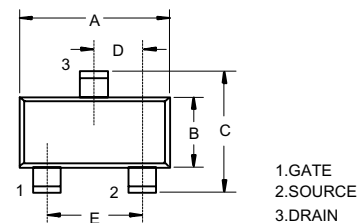
Equivalent circuit



Marking: X / 34K

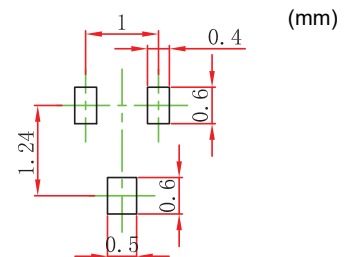
## N-Channel Plastic-Encapsulate Transistor

## SOT-523



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.059	.067	1.50	1.70	
B	.030	.033	0.75	0.85	
C	.057	.069	1.45	1.75	
D	.020 Nominal		0.50Nominal		
E	.035	.043	0.90	1.10	
G	.000	.004	.000	.100	
H	.028	.031	.70	0.80	
J	.004	.008	.100	.200	
K	.010	.014	.25	.35	

### SUGGESTED SOLDER PAD LAYOUT



## MOSFET ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

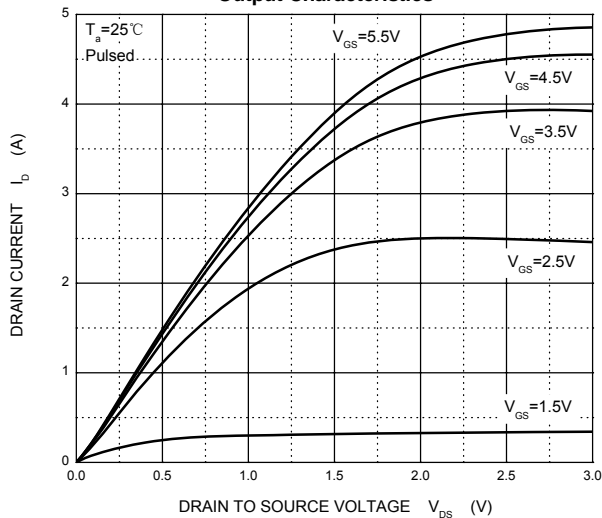
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Gate-source leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 4.5V$			$\pm 1$	$\mu A$
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 16V, V_{GS} = 0V$			100	nA
<b>ON CHARACTERISTICS (note 2)</b>						
Gate-source threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.45		1.1	V
Drain-source on-state resistance	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 600mA$			570	m $\Omega$
		$V_{GS} = 2.5V, I_D = 500mA$			620	
		$V_{GS} = 1.8V, I_D = 350mA$			700	
		$V_{GS} = 1.5V, I_D = 40mA$			950	
Forward transconductance	$g_{fs}$	$V_{DS} = 10V, I_D = 400mA$	0.5			S
<b>CHARGES AND CAPACITANCES (note 3)</b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 16V, V_{GS} = 0V, f = 1MHz$		110		pF
Output Capacitance	$C_{oss}$			16		
Reverse Transfer Capacitance	$C_{rss}$			12		
Total Gate Charge	$Q_g$	$V_{DS} = 10V, V_{GS} = 4.5V, I_D = 200mA$		1.82		nC
Gate-Source Charge	$Q_{gs}$			0.3		
Gate-Drain Charge	$Q_{gd}$			0.42		
<b>SWITCHING CHARACTERISTICS (note 3,4)</b>						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 10V, V_{GS} = 4.5V, R_G = 10\Omega, I_D = 200mA$		3.7		ns
Rise time	$t_r$			4.4		
Turn-off delay time	$t_{d(off)}$			25		
Fall time	$t_f$			7.6		
<b>DRAIN-SOURCE DIODE CHARACTERISTICS</b>						
Body diode voltage	$V_{SD}$	$I_S = 0.2A, V_{GS} = 0V$			1.1	V

**Notes :**

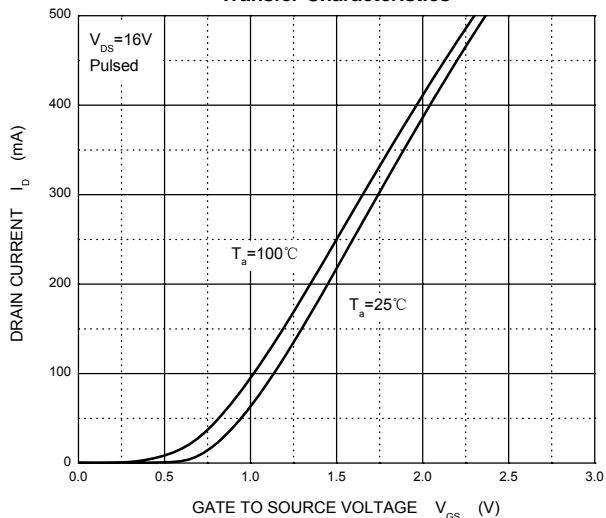
1. Surface mounted on FR4 board using 1 in sq pad size.
2. Puls Test : Pulse width  $\leq 300\mu s$ , Duty cycle  $\leq 2\%$ .
3. Guaranteed by design, not subject to production testing.
4. Switching characteristics are independent of operating junction temperatures.

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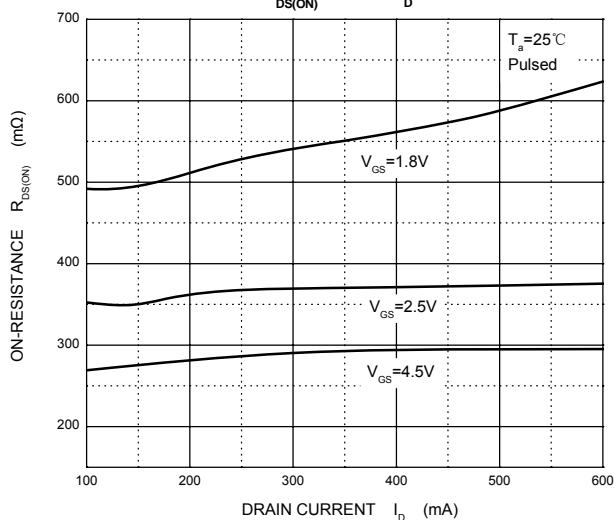
**Output Characteristics**



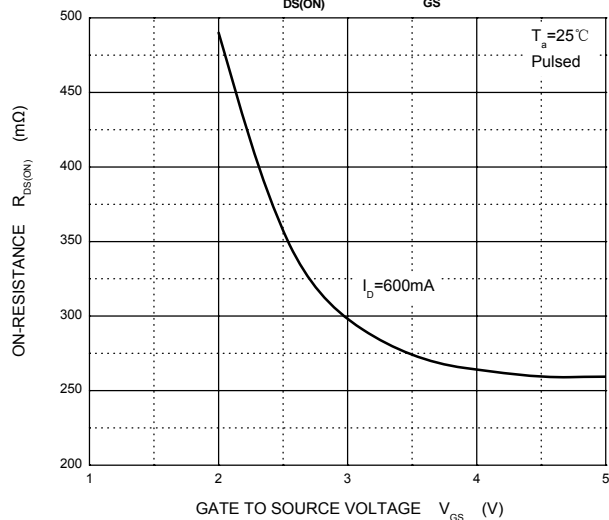
**Transfer Characteristics**



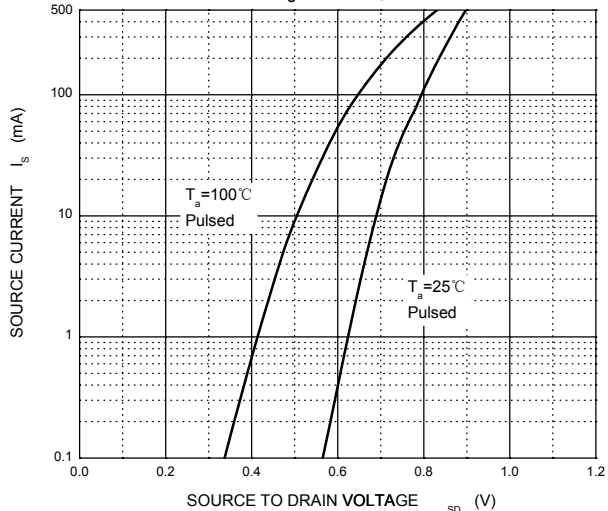
**$R_{DS(ON)}$  —  $I_D$**



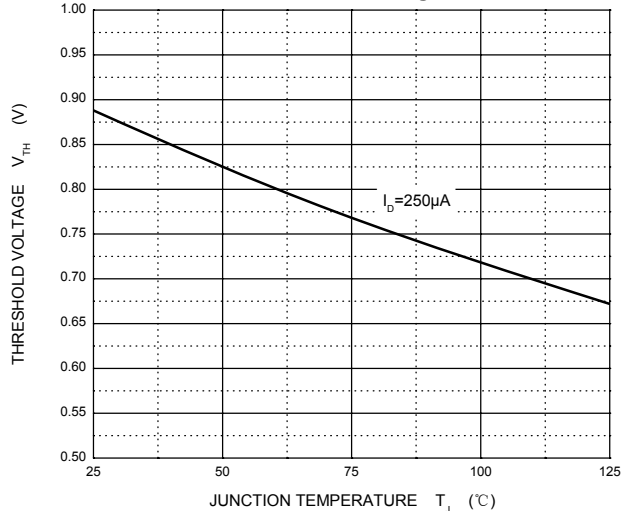
**$R_{DS(ON)}$  —  $V_{GS}$**



**$I_S$  —  $V_{SD}$**



**Threshold Voltage**





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Ordering Information :

Device	Packing
(Part Number)-TP	Tape&Reel:3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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