Micro Commercial Components
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SI4153

N-Channel Plastic-Encapsulate Transistor

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

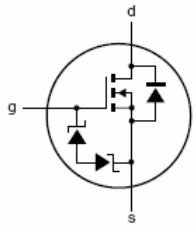
- Case: SOT-523, Molded Plastic
- Terminal Connections: See Diagram

Maximum Ratings

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

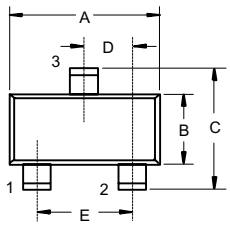
Parameter	Symbol	Value	Unit
Drain-Source-Voltage	V_{DSS}	20	V
Gate-Source-Voltage	V_{GSS}	±6	V
Continuous Drain Current	I_D	0.915	A
Thermal Resistance, Junction-to-Ambient	R_{thJA}	833	°C/W
Total Power Dissipation	P_D	150	mW

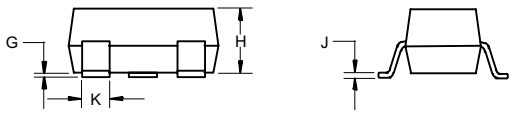
Equivalent circuit



Marking: X / 34K

SOT-523

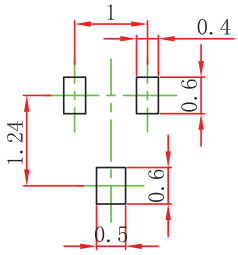




DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
A	.059	.067	1.50	1.70	
B	.030	.033	0.75	0.85	
C	.057	.069	1.45	1.75	
D	.020 Nominal		0.50Nominal		
E	.035	.043	0.90	1.10	
G	.000	.004	.000	.100	
H	.028	.031	.70	0.80	
J	.004	.008	.100	.200	
K	.010	.014	.25	.35	

SUGGESTED SOLDER PAD LAYOUT

(mm)



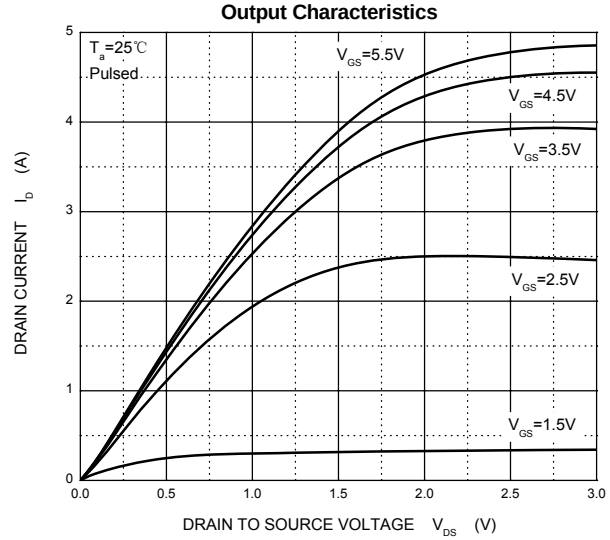
MOSFET ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	20			V
Gate-source leakage	I_{GSS}	V_{DS} =0V, V_{GS} =±4.5V			±1	μA
Zero gate voltage drain current	I_{DSS}	V_{DS} =16V, V_{GS} =0V			100	nA
ON CHARACTERISTICS (note 2)						
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.45		1.1	V
Drain-source on-state resistance	$R_{DS(on)}$	V_{GS} =4.5V, I_D =600mA			570	mΩ
		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
CHARGES AND CAPACITANCES (note 3)						
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		
SWITCHING CHARACTERISTICS (note 3,4)						
Turn-on delay time	$t_{d(on)}$	V_{DD}=10V, V_{GS}=4.5V R_G=10Ω, 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		
DRAIN-SOURCE DIODE CHARACTERISTICS						
Body diode voltage	V_{SD}	I_S=0.2A, V_{GS} =0V			1.1	V

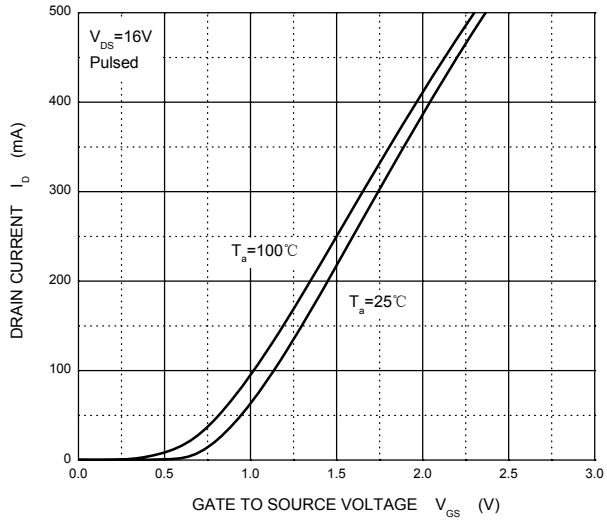
Notes :

1. Surface m nted on FR4 board using 1 in sq pad size.
2. Puls Test : Pulse width ≤300μs, Duty cycle ≤2%.
3. Guaranteed by design, not subject to production testing.
4. witching characteristics are independent of operating junction temperatures.

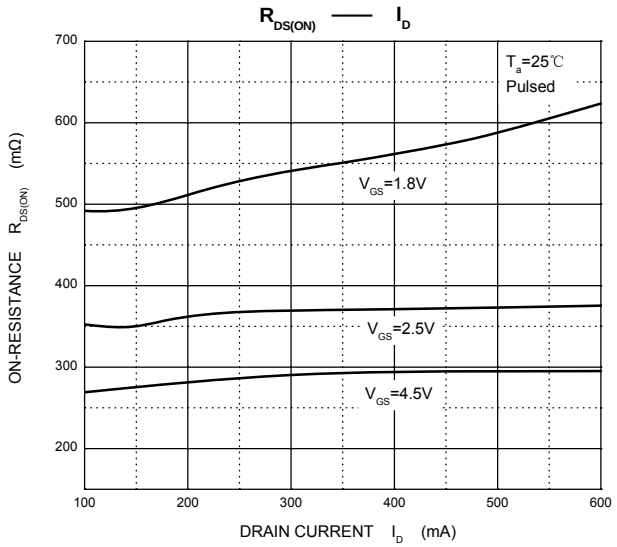
Output Characteristics



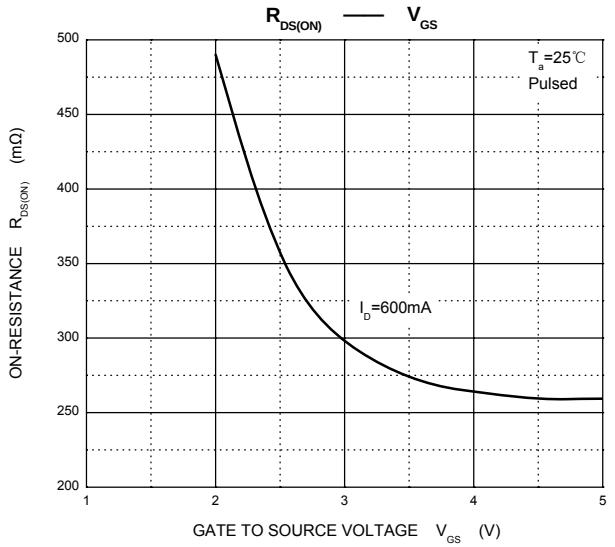
Transfer Characteristics



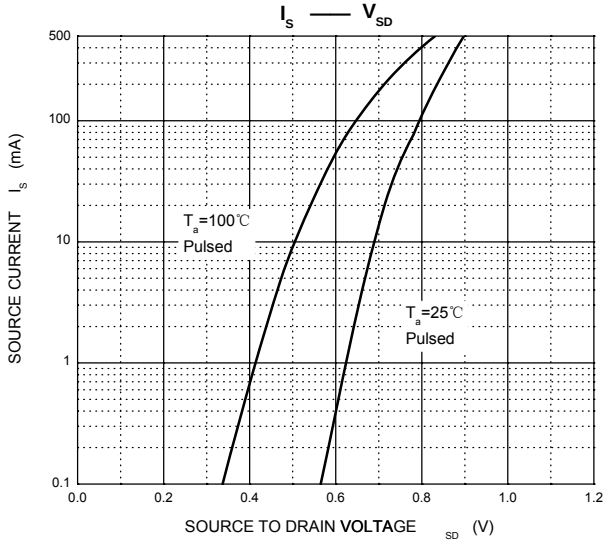
$R_{DS(ON)}$ — I_D



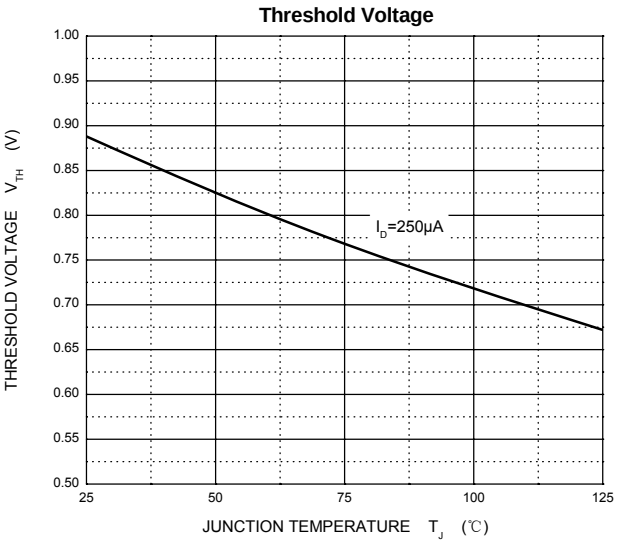
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage



Micro Commercial Components

Ordering Information :

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

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