



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





Micro Commercial Components
20736 Marilla Street Chatsworth
CA 91311
Phone: (818) 701-4933
Fax: (818) 701-4939

SI3402

Features

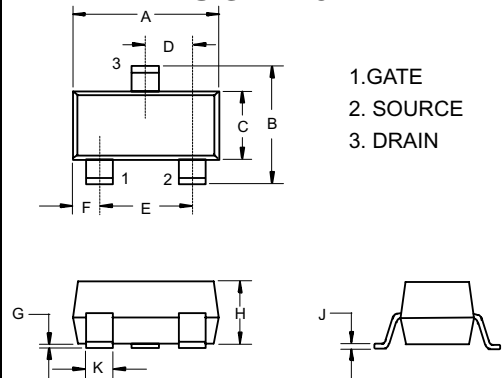
- Lead free product is acquired
- SOT-23 Package
- Marking Code: R2
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Halogen free available upon request by adding suffix "-HF"

N-Channel Enhancement Mode Field Effect Transistor

Maximum Ratings @ 25°C Unless Otherwise Specified

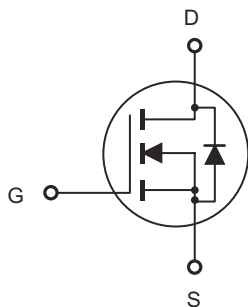
Symbol	Parameter	Rating	Unit
V _{DS}	Drain-source Voltage	30	V
I _D	Drain Current-Continuous	4	A
I _{DM}	Drain Current-Pulsed	15	A
V _{GS}	Gate-source Voltage	±12	V
P _D	Total Power Dissipation	0.35	W
R _{θJA}	Thermal Resistance Junction to Ambient ^D	357	°C/W
T _J	Operating Junction Temperature	-55 to +150	°C
T _{STG}	Storage Temperature	-55 to +150	°C

SOT-23

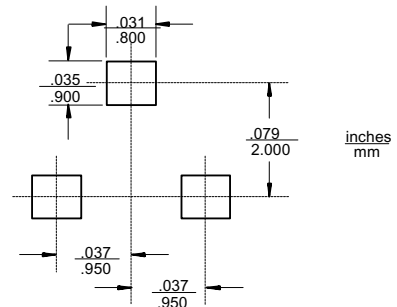


DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.110	.120	2.80	3.04	
B	.083	.104	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

Internal Block Diagram



Suggested Solder Pad Layout



SI3402

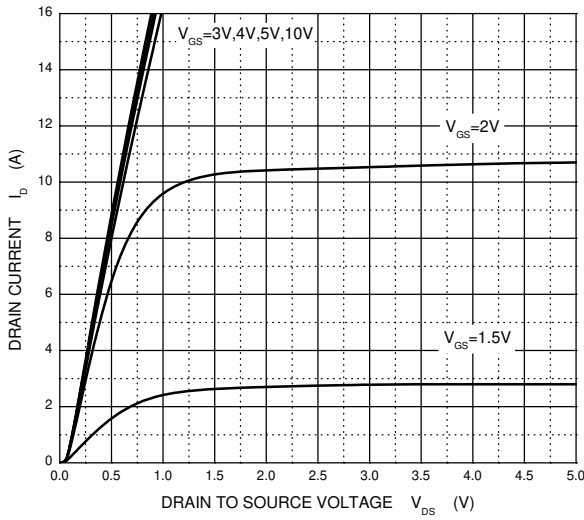
MOSFET ELECTRICAL CHARACTERISTICS $T_a=25^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 12V, V_{DS} = 0V$			100	nA
Gate threshold voltage (note 3)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.6		1.4	V
Drain-source on-resistance (note 3)	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 4A$			55	m Ω
		$V_{GS} = 4.5V, I_D = 3A$			70	m Ω
		$V_{GS} = 2.5V, I_D = 2A$			110	m Ω
Forward transconductance (note 3)	g_{FS}	$V_{DS} = 15V, I_D = 4A$		8		S
Diode forward voltage (note 3)	V_{SD}	$I_S = 1A, V_{GS} = 0V$			1	V
DYNAMIC CHARACTERISTICS (note 4)						
Input capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		390		pF
Output capacitance	C_{oss}			54.5		pF
Reverse transfer capacitance	C_{rss}			41		Pf
Gate resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		3		Ω
SWITCHING CHARACTERISTICS (note 4)						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = 10V, V_{DS} = 15V,$ $R_L = 3.75\Omega, R_{GEN} = 6\Omega$		3.3		ns
Turn-on rise time	t_r			1		ns
Turn-off delay time	$t_{d(off)}$			21.7		ns
Turn-off fall time	t_f			2.1		ns
Total gate charge	Q_g	$V_{DS} = 15V, V_{GS} = 4.5V, I_D = 4A$		4.34		nC
Gate-source Charge	Q_{gs}			0.6		nC
Gate-drain Charge	Q_{gd}			1.38		nC
Body diode reverse recovery time	t	$I_F = 4A, di/dt = 100A/\mu s$		1.2		ns
Body diode reverse recovery charge	Q_{rr}			6.3		nC

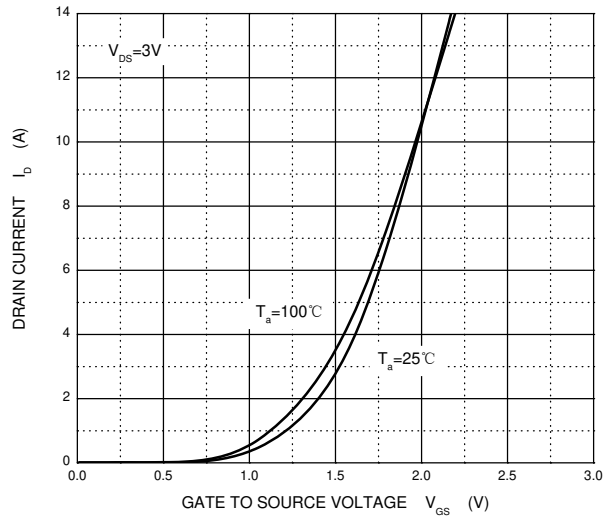
Notes :

1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , $t \leq 10s$.
3. Pulse Test : Pulse Width $\leq 80\mu s$, Duty Cycle $\leq 0.5\%$.
4. Guaranteed by design, not subject to producing.

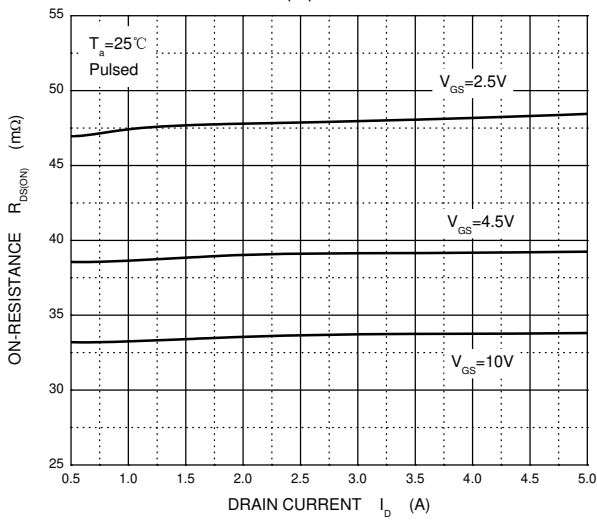
Output Characteristics



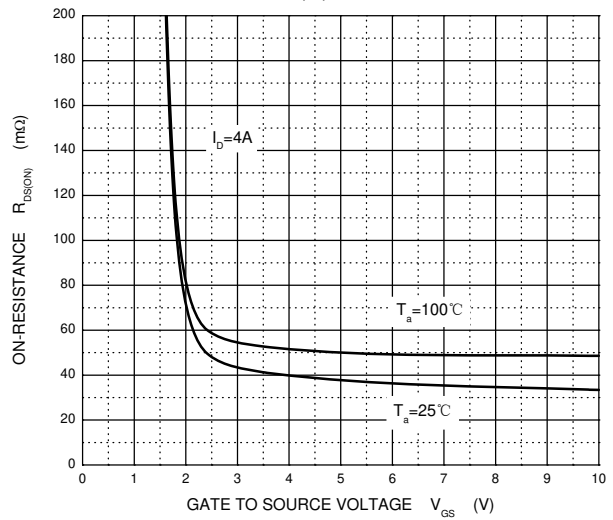
Transfer Characteristics



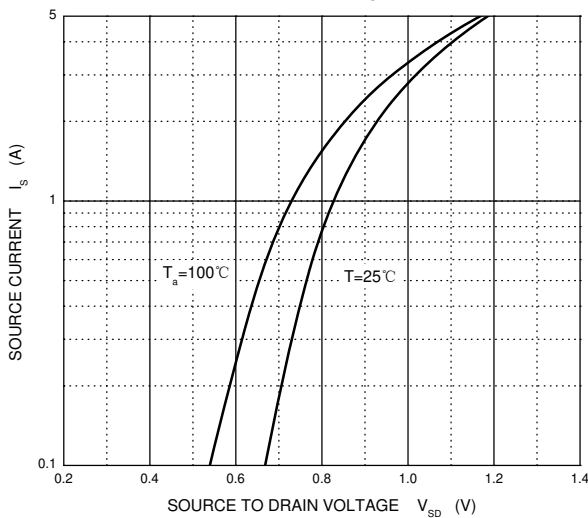
$R_{DS(ON)}$ — I_D



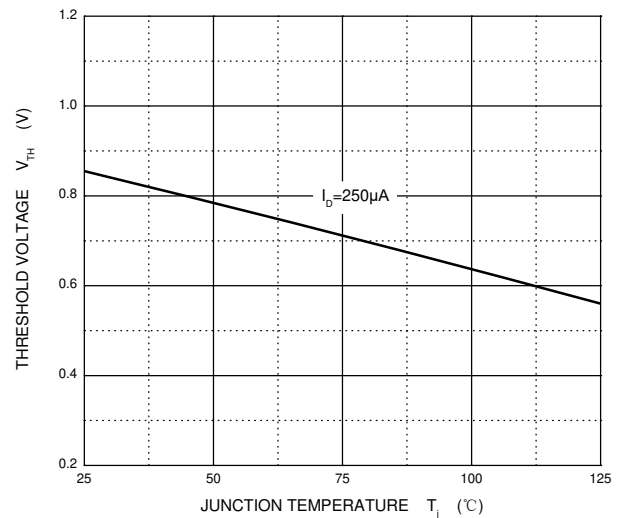
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage





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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