



Micro Commercial Components



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## SI3401B

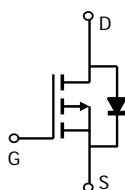
### Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- High dense cell design for extremely low  $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- SOT-23 Package
- Halogen free available upon request by adding suffix "-HF"

### Maximum Ratings @ 25°C Unless Otherwise Specified

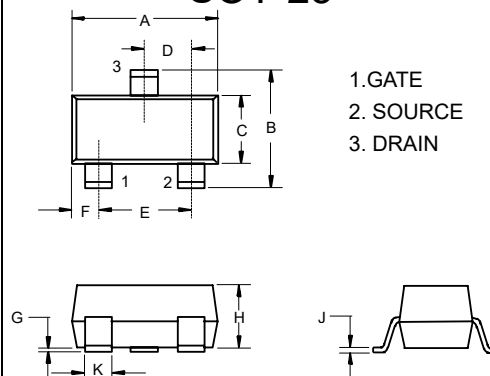
Symbol	Parameter	Rating	Unit
$V_{DS}$	Drain-source Voltage	-30	V
$I_D$	Drain Current-Continuous	-4.2	A
$V_{GS}$	Gate-source Voltage	$\pm 12$	V
$P_D$	Total Power Dissipation	0.4	W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	313	°C/W
$T_J$	Operating Junction Temperature	-55 to +150	°C
$T_{STG}$	Storage Temperature	-55 to +150	°C

### Internal Block Diagram



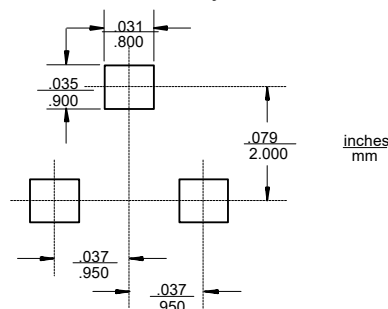
### P-Channel Enhancement Mode Field Effect Transistor

#### SOT-23



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.110	.120	2.80	3.04	
B	.083	.098	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	

#### Suggested Solder Pad Layout



# SI3401B

## Electrical characteristics (T<sub>a</sub>=25°C unless otherwise noted)

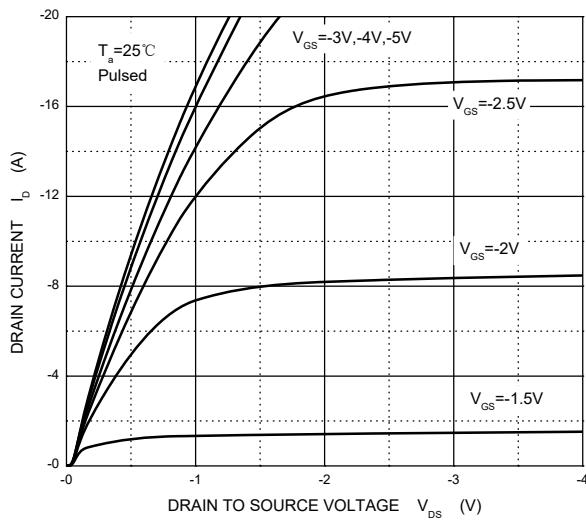
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off characteristics						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =-250μA	-30			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =-24V,V <sub>GS</sub> = 0V			-1	μA
Gate-source leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±12V, V <sub>DS</sub> = 0V			±100	nA
On characteristics						
Drain-source on-resistance (note 1)	R <sub>DS(on)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-4.2A		41	60	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-4A		47	70	mΩ
		V <sub>GS</sub> =-2.5V,I <sub>D</sub> =-1A		61	85	mΩ
Forward tranconductance (note 1)	g <sub>FS</sub>	V <sub>DS</sub> =-5V, I <sub>D</sub> =-5A	7			S
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-0.6		-1.3	V
Dynamic characteristics (note 2)						
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-15V,V <sub>GS</sub> =0V,f =1MHz		1050		pF
Output capacitance	C <sub>oss</sub>			127		pF
Reverse transfer capacitance	C <sub>rss</sub>			85		pF
Switching characteristics (note 2)						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>GS</sub> =-10V,V <sub>DS</sub> =-15V, R <sub>L</sub> =3.6Ω,R <sub>GEN</sub> =6Ω			6.5	ns
Turn-on rise time	t <sub>r</sub>				3.5	ns
Turn-off delay time	t <sub>d(off)</sub>				40	ns
Turn-off fall Time	t <sub>f</sub>				13	ns
Drain-source diode characteristics and maximum ratings						
Diode forward voltage (note 1)	V <sub>SD</sub>	I <sub>S</sub> =-1A,V <sub>GS</sub> =0V			-1	V

### Note :

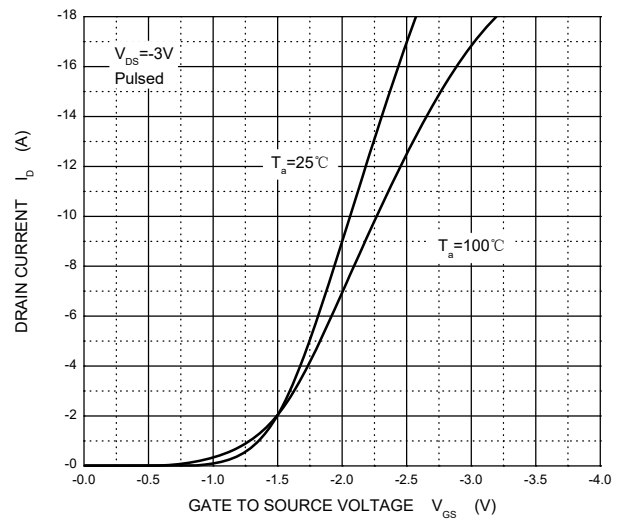
1. Pulse Test : Pulse width ≤ 300μs, duty cycle ≤ 2%.
2. These parameters have no way to verify.

## Typical characteristics

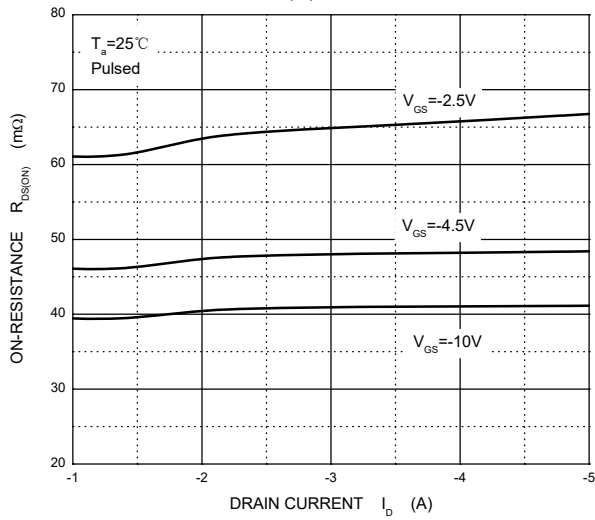
Output Characteristics



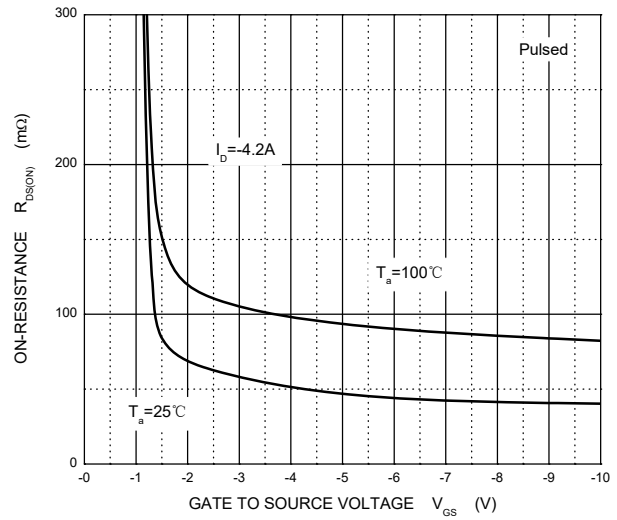
Transfer Characteristics



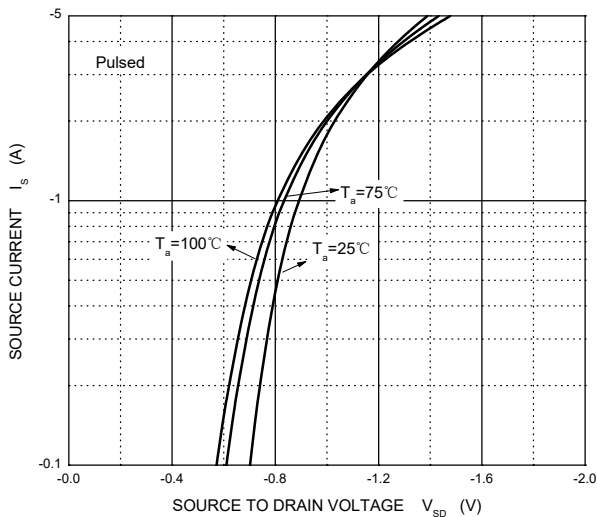
$R_{DS(ON)}$  —  $I_D$



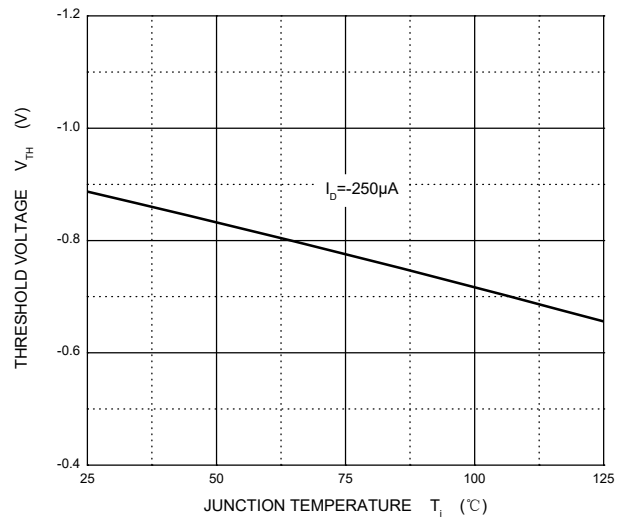
$R_{DS(ON)}$  —  $V_{GS}$



$I_S$  —  $V_{SD}$



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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