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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.

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Micro Commercial Components



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# SI2305B

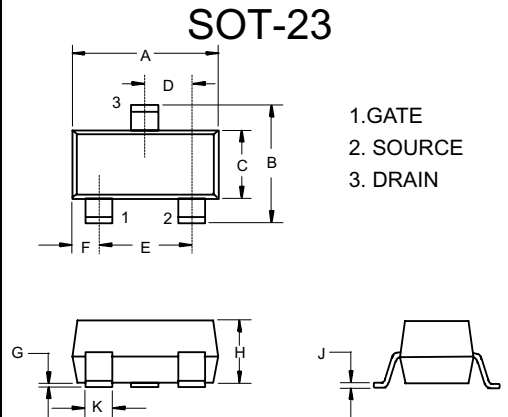
## Features

- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- TrenchFET MOSFET
- Low R<sub>DS(on)</sub>

## P-Channel Enhancement Mode Field Effect Transistor

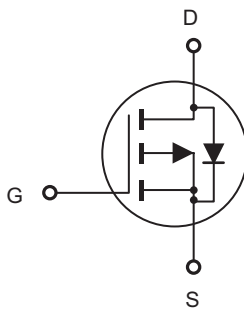
### Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
V <sub>DS</sub>	Drain-source Voltage	-20	V
I <sub>D</sub>	Continuous Drain Current	-4.2	A
V <sub>GS</sub>	Gate-source Voltage	±8	V
P <sub>D</sub>	Total Power Dissipation	1.4	W
R <sub>θJA</sub>	Thermal Resistance Junction to Ambient <sup>b</sup>	90	°C/W
T <sub>J</sub>	Operating Junction Temperature	-55 to +150	°C
T <sub>STG</sub>	Storage Temperature	-55 to +150	°C

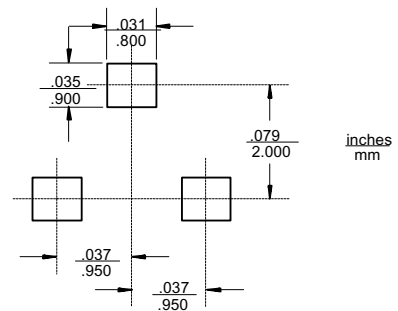


DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.110	.120	2.80	3.04	
B	.083	.104	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

## Internal Block Diagram



### Suggested Solder Pad Layout

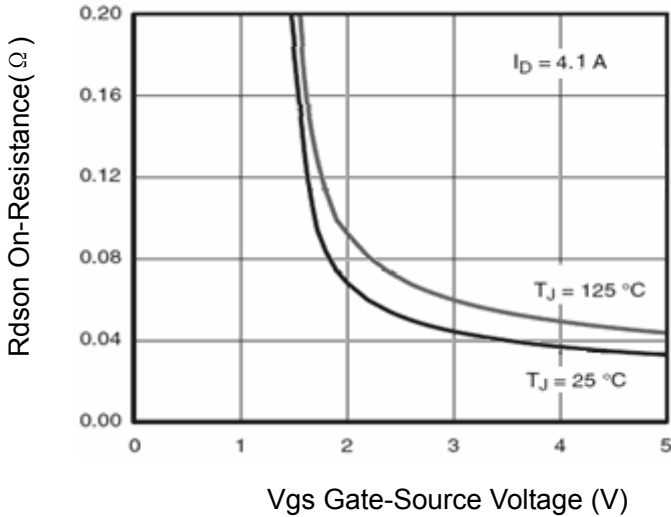


## Electrical characteristics (T<sub>a</sub>=25°C unless otherwise noted)

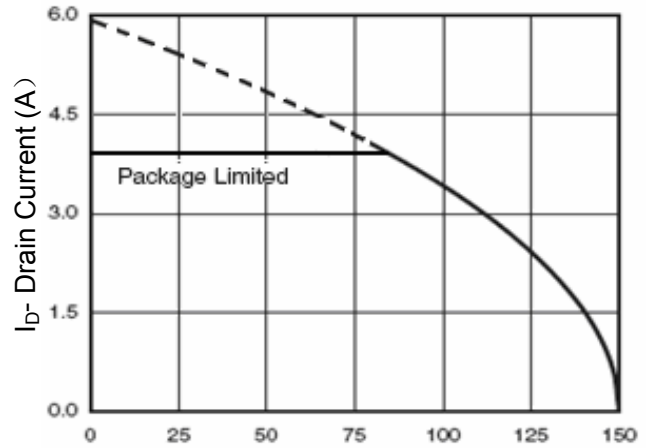
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
<b>Static</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-20			V
Gate-source threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-0.5		-0.9	
Gate-source leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±8V			±100	nA
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = -20V, V <sub>GS</sub> = 0V			-1	μA
Drain-source on-state resistance <sup>a</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -2.7A		0.035	0.060	Ω
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -2.7A		0.046	0.080	
		V <sub>GS</sub> = -1.8V, I <sub>D</sub> = -2.7A		0.090		
Forward transconductance <sup>a</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -4.1A	6			S
<b>Dynamic</b>						
Input capacitance <sup>b,c</sup>	C <sub>iSS</sub>	V <sub>DS</sub> = -4V, V <sub>GS</sub> = 0V, f = 1MHz		740		pF
Output capacitance <sup>b,c</sup>	C <sub>oSS</sub>			290		
Reverse transfer capacitance <sup>b,c</sup>	C <sub>rSS</sub>			190		
Total gate charge <sup>b</sup>	Q <sub>g</sub>	V <sub>DS</sub> = -4V, V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -4.1A		7.8	15	nC
		V <sub>DS</sub> = -4V, V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -4.1A		4.5	9	
Gate-source charge <sup>b</sup>	Q <sub>gs</sub>			1.2		
Gate-drain charge <sup>b</sup>	Q <sub>gd</sub>			1.6		
Gate resistance <sup>b,c</sup>	R <sub>g</sub>	f = 1MHz	1.4	7	14	Ω
Turn-on delay time <sup>b,c</sup>	t <sub>d(on)</sub>	V <sub>DD</sub> = -4V, R <sub>L</sub> = 1.2Ω, I <sub>D</sub> = -3.3A, V <sub>GEN</sub> = -4.5V, R <sub>g</sub> = 1Ω		13	20	ns
Rise time <sup>b,c</sup>	t <sub>r</sub>			35	53	
Turn-off Delay time <sup>b,c</sup>	t <sub>d(off)</sub>			32	48	
Fall time <sup>b,c</sup>	t <sub>f</sub>			10	20	
Turn-on delay time <sup>b,c</sup>	t <sub>d(on)</sub>			5	10	
Rise time <sup>b,c</sup>	t <sub>r</sub>			11	17	
Turn-off delay time <sup>b,c</sup>	t <sub>d(off)</sub>			22	33	
Fall time <sup>b,c</sup>	t <sub>f</sub>			16	24	
<b>Drain-source body diode characteristics</b>						
Continuous source-drain diode current	I <sub>S</sub>	T <sub>C</sub> = 25°C			-4.2	A
Pulse diode forward current <sup>a</sup>	I <sub>SM</sub>				-10	
Body diode voltage	V <sub>SD</sub>	I <sub>F</sub> = -3.3A		-0.8	-1.2	V

**Note :**

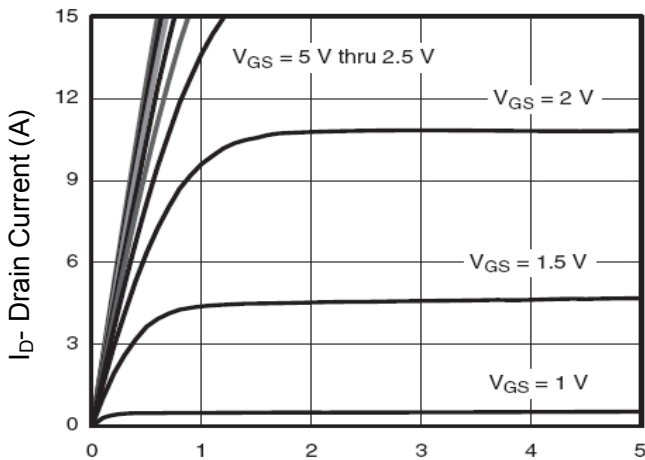
- a. Pulse Test ; Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.
- c. These parameters have no way to verify.



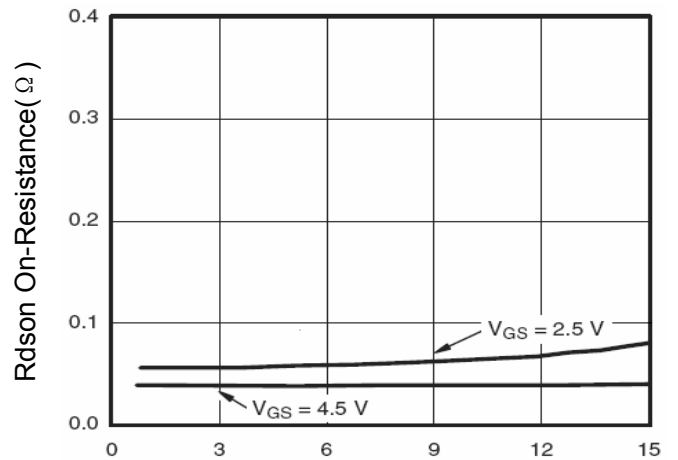
Vgs Gate-Source Voltage (V)  
**Figure 1 Rdson vs Vgs**



T<sub>J</sub>-Junction Temperature(°C)  
**Figure 2 Drain Current**



Vds Drain-Source Voltage (V)  
**Figure 3 Output Characteristics**



ID- Drain Current (A)  
**Figure 4 Drain-Source On-Resistance**





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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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