



Micro Commercial Components



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SI2305

P-Channel Enhancement Mode Field Effect Transistor

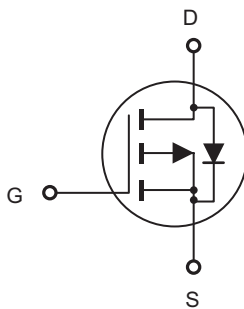
Features

- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- TrenchFET Power MOSFET
- Load Switch for Portable Devices
- DC/DC Converter
- SOT-23 Package
- Marking Code: S5

Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
V _{DS}	Drain-source Voltage	-8	V
I _D	Continuous Drain Current	-4.1	A
I _S	Continuous Source-Drain Diode Current	-0.8	A
V _{GS}	Gate-source Voltage	±8	V
P _D	Total Power Dissipation	0.35	W
R _{θJA}	Thermal Resistance Junction to Ambient ^b	357	°C/W
T _J	Operating Junction Temperature	-55 to +150	°C
T _{STG}	Storage Temperature	-55 to +150	°C

Internal Block Diagram



SOT-23

1. GATE
 2. SOURCE
 3. DRAIN

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	

Suggested Solder Pad Layout

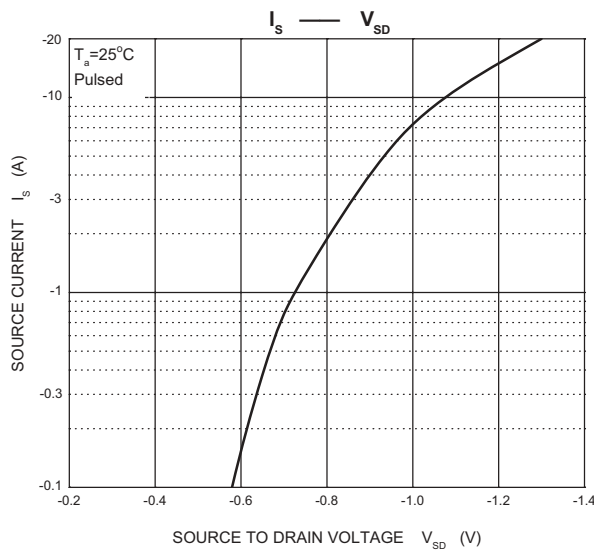
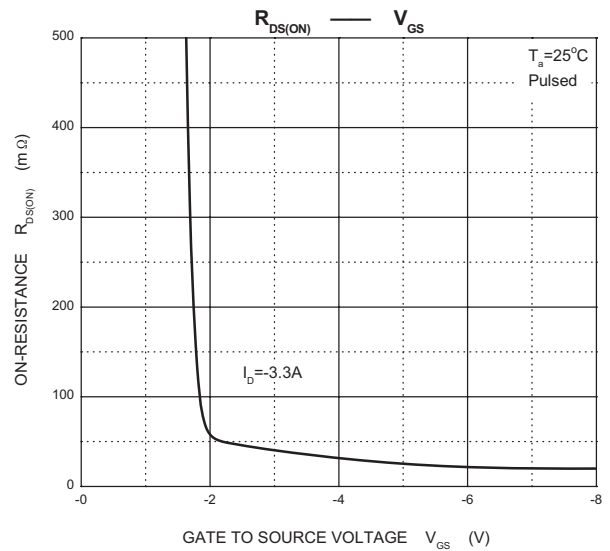
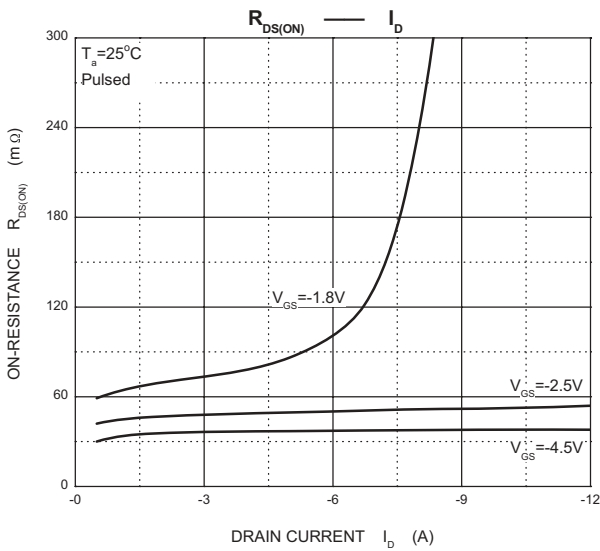
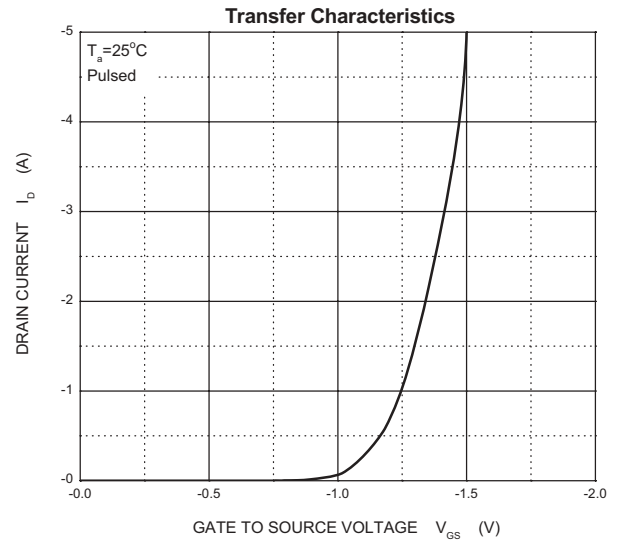
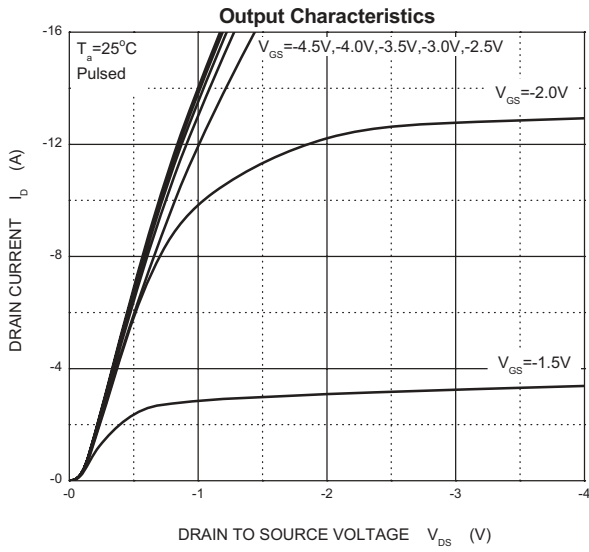
Electrical characteristics (T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-8			V
Gate-source threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.5I		-0.9	
Gate-source leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±8V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} = -8V, V _{GS} = 0V			-1	μA
Drain-source on-state resistance ^a	R _{DS(on)}	V _{GS} = -4.5V, I _D = -3.5A			0.045	Ω
		V _{GS} = -2.5V, I _D = -3A			0.060	
		V _{GS} = -1.8V, I _D = -2.0A			0.090	
Forward transconductance ^a	g _{fs}	V _{DS} = -5V, I _D = -4.1A	6			S
Dynamic						
Input capacitance ^{b,c}	C _{iSS}	V _{DS} = -4V, V _{GS} = 0V, f = 1MHz		740		pF
Output capacitance ^{b,c}	C _{oSS}			290		
Reverse transfer capacitance ^{b,c}	C _{rSS}			190		
Total gate charge ^b	Q _g	V _{DS} = -4V, V _{GS} = -4.5V, I _D = -4.1A		7.8	15	nC
		V _{DS} = -4V, V _{GS} = -2.5V, I _D = -4.1A		4.5	9	
Gate-source charge ^b	Q _{gs}			1.2		
Gate-drain charge ^b	Q _{gd}			1.6		
Gate resistance ^{b,c}	R _g	f = 1MHz	1.4	7	14	Ω
Turn-on delay time ^{b,c}	t _{d(on)}	V _{DD} = -4V, R _L = 1.2Ω, I _D = -3.3A, V _{GEN} = -4.5V, R _g = 1Ω		13	20	ns
Rise time ^{b,c}	t _r			35	53	
Turn-off Delay time ^{b,c}	t _{d(off)}			32	48	
Fall time ^{b,c}	t _f			10	20	
Turn-on delay time ^{b,c}	t _{d(on)}			5	10	
Rise time ^{b,c}	t _r			11	17	
Turn-off delay time ^{b,c}	t _{d(off)}			22	33	
Fall time ^{b,c}	t _f			16	24	
Drain-source body diode characteristics						
Continuous source-drain diode current	I _S	T _C = 25°C			-1.4	A
Pulse diode forward current ^a	I _{SM}				-10	
Body diode voltage	V _{SD}	I _F = -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.

SI2305





TM

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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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