Micro Commercial Components

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SI2306

N-Channel Enhancement Mode Field Effect Transistor

Features

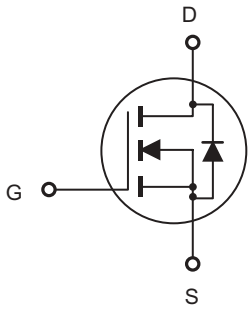
- Halogen free available upon request by adding suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- High dense cell design for extremely low $R_{DS(ON)}$
- Rugged and reliable
- Lead free product is acquired
- SOT-23 Package
- Marking Code: S6

Maximum Ratings @ 25°C Unless Otherwise Specified

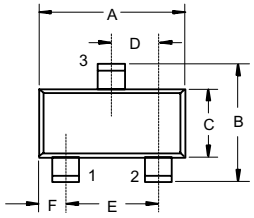
Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	30	V
I_D	Drain Current-Continuous9(Note:1,2)	3.16	A
I_{DM}	Drain Current-Pulsed	20	A
V_{GS}	Gate-source Voltage	±20	V
I_S	Source Current-Continuoud(Note:1,2)	0.62	A
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	100	℃/W
P_D	Total Power Dissipation	0.75	W
T_J	Operating Junction Temperature	-55 to +150	℃
T_{STG}	Storage Temperature	-55 to +150	℃

Note1: Surface Mounted on 1"x1" FR4 board, t<5s
Note2: Pulse width limited by maximum junction temperature.

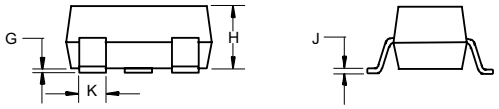
Internal Block Diagram



SOT-23

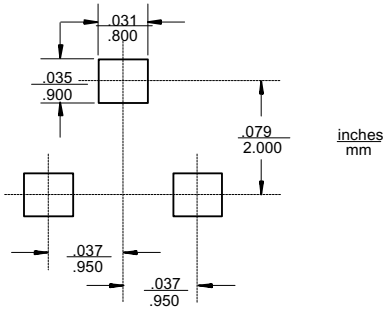


1.GATE
2. SOURCE
3. DRAIN



DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
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



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Electrical characteristics (at T_A=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DS}$	V_{GS} = 0V, I_D =250μA	30			V
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.0		3.0	
Gate-Body Leakage	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =30V, V_{GS} =0V			0.5	μA
Drain-Source On-Resistance[a]	$R_{DS(on)}$	V_{GS} =10V, I_D =3.5A		0.038	0.047	Ω
		V_{GS} =4.5V, I_D =2.8A		0.052	0.065	
Forward Transconductance[a]	g_{fs}	V_{DS} =4.5V, I_D =2.5A		7.0		S
Diode Forward Voltage	V_{SD}	I_S=1.25A,V_{GS}=0V		0.8	1.2	V
Dynamic						
Gate Charge	Q_g	V_{DS} =15V,V_{GS} =5V,I_D =2.5A		3.0	4.5	nC
Total Gate Charge	Q_{gt}	V_{DS} =15V,V_{GS} =10V,I_D =2.5A		6	9	
Gate-Source Charge	Q_{gs}			1.6		
Gate-Drain Charge	Q_{gd}			0.6		
Gate Resistance	R_g	f =1.0MHz	2.5	5	7.5	Ω
Input Capacitance	C_{iss}	V_{DS} =15V,V_{GS} =0V,f =1MHz		305		pF
Output Capacitance	C_{oss}			65		
Reverse Transfer Capacitance	C_{rss}			29		
Switching						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=15V, R_L=15Ω, I_D ≈1A, V_{GEN}=10V,Rg=6Ω		7	11	ns
Rise Time	t_r			12	18	
Turn-Off Delay Time	$t_{d(off)}$			14	25	
Fall Time	t_f			6	10	

Notes :

a.Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.

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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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