



Micro Commercial Components



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

SI2306

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

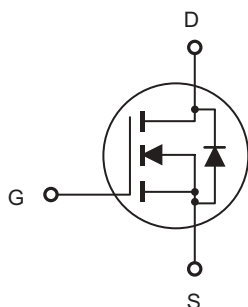
Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	30	V
I_D	Drain Current-Continuous ⁹ (Note:1,2)	3.16	A
I_{DM}	Drain Current-Pulsed	20	A
V_{GS}	Gate-source Voltage	± 20	V
I_S	Source Current-Continuous(Note:1,2)	0.62	A
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	100	°C/W
P_D	Total Power Dissipation	0.75	W
T_J	Operating Junction Temperature	-55 to +150	°C
T_{STG}	Storage Temperature	-55 to +150	°C

Note1: Surface Mounted on 1"x1" FR4 board, $t \leq 5s$

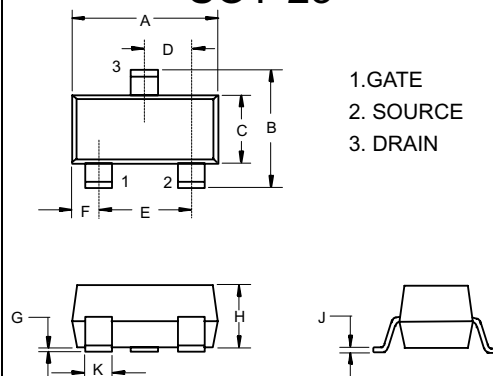
Note2: Pulse width limited by maximum junction temperature.

Internal Block Diagram



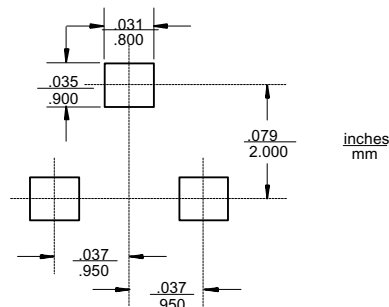
N-Channel Enhancement Mode Field Effect Transistor

SOT-23



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



SI2306



Micro Commercial Components

Electrical characteristics (at T_A=25°C 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,R _g =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%.

Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

IMPORTANT NOTICE

Micro Commercial Components Corp. reserves the right to make changes without further notice to any product herein to make corrections, modifications , enhancements , improvements , or other changes . **Micro Commercial Components Corp .** does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights ,nor the rights of others . The user of products in such applications shall assume all risks of such use and will agree to hold **Micro Commercial Components Corp .** and all the companies whose products are represented on our website, harmless against all damages.

LIFE SUPPORT

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

CUSTOMER AWARENESS

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources.** MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.