



Micro Commercial Components



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

SI8810

## Features

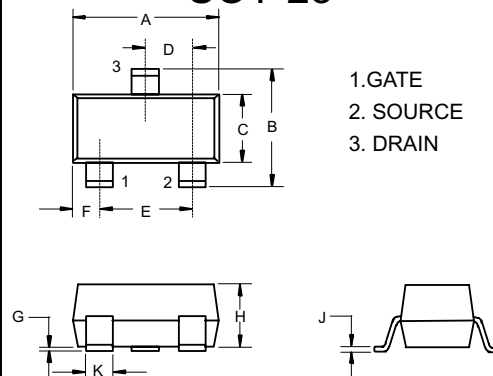
- Halogen free available upon request by adding suffix "-HF"
- 20V, 7.0A,  $R_{DS(ON)} = 22m\Omega$  @  $V_{GS} = 4.5V$   
 $R_{DS(ON)} = 26m\Omega$  @  $V_{GS} = 2.5V$
- Low  $R_{DS(ON)}$
- Rugged and reliable
- ESD Protected Gate
- SOT-23 Package
- Marking Code: 8810
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

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

Symbol	Parameter	Rating	Unit
$V_{DS}$	Drain-source Voltage	20	V
$I_D$	Drain Current-Continuous	7	A
$I_{DM}$	Drain Current-Pulsed <sup>a</sup>	30	A
$V_{GS}$	Gate-source Voltage	$\pm 12$	V
$R_{\theta JA}$	Thermal Resistance Junction to Ambient <sup>b</sup>	417	°C/W
$T_J$	Operating Junction Temperature	-55 to +150	°C
$T_{STG}$	Storage Temperature	-55 to +150	°C

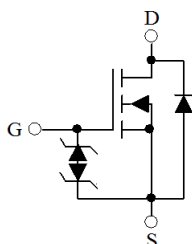
## N-Channel Enhancement Mode Field Effect Transistor

### SOT-23

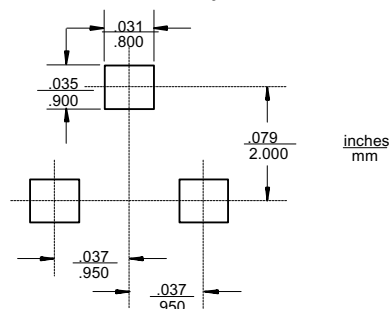


DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.110	.120	2.80	3.04	
B	.083	.104	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

## Internal Block Diagram



### Suggested Solder Pad Layout



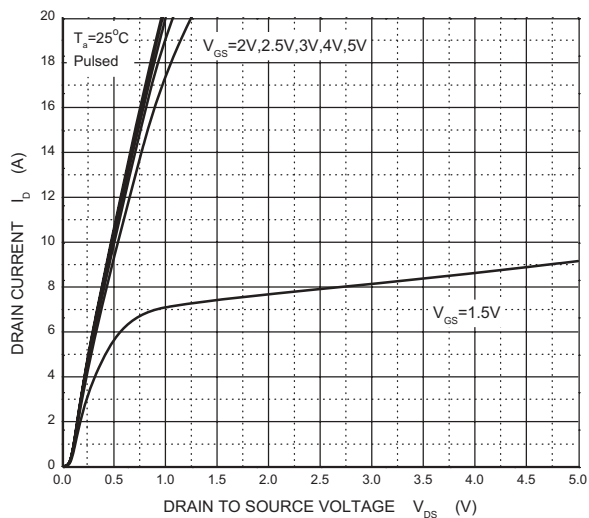
**Electrical Characteristics**  $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	V <sub>(BR) DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	20			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =16V, V <sub>GS</sub> = 0V			1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±4.5V, V <sub>DS</sub> = 0V			±1	μA
		V <sub>GS</sub> =±8V, V <sub>DS</sub> = 0V			±10	μA
Gate threshold voltage (note 1)	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.4		1	V
Drain-source on-resistance (note 1)	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =7A			20	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =6.6A			22	mΩ
		V <sub>GS</sub> =3.8V, I <sub>D</sub> =6A			24	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =5.5A			26	mΩ
		V <sub>GS</sub> =1.8V, I <sub>D</sub> =5A			35	mΩ
Forward tranconductance (note 1)	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =7A	9			S
Diode forward voltage(note 1)	V <sub>SD</sub>	I <sub>S</sub> =1A, V <sub>GS</sub> = 0V			1	V
DYNAMIC PARAMETERS (note 2)						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f =1MHz		1150		pF
Output Capacitance	C <sub>oss</sub>			185		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			145		pF
Total gate charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =7A		15		nC
Gate-source charge	Q <sub>gs</sub>			0.8		nC
Gate-drain charge	Q <sub>gd</sub>			3.2		nC
SWITCHING PARAMETERS(note 2)						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>GS</sub> =5V, V <sub>DD</sub> =10V, R <sub>L</sub> =1.35Ω, R <sub>GEN</sub> =3Ω		6		ns
Turn-on rise time	t <sub>r</sub>			13		ns
Turn-off delay time	t <sub>d(off)</sub>			52		ns
Turn-off fall time	t <sub>f</sub>			16		ns

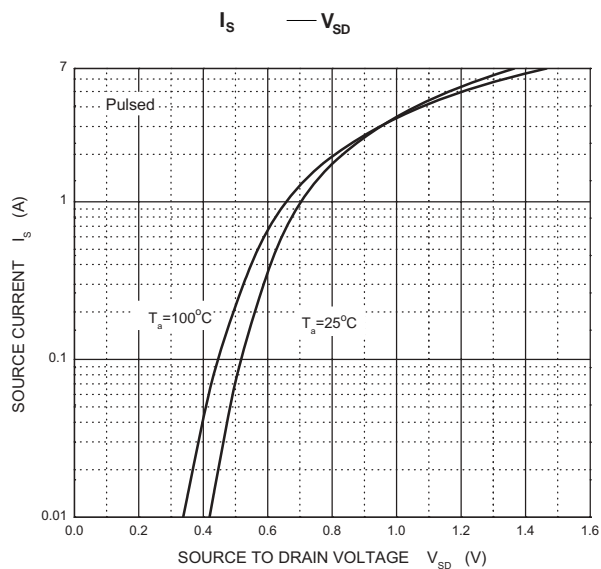
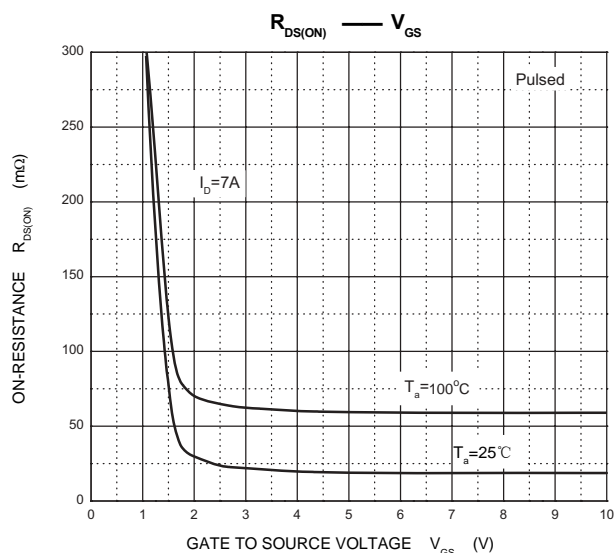
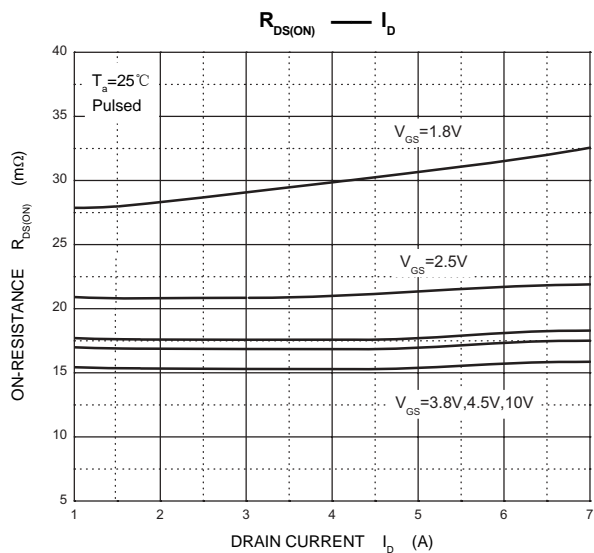
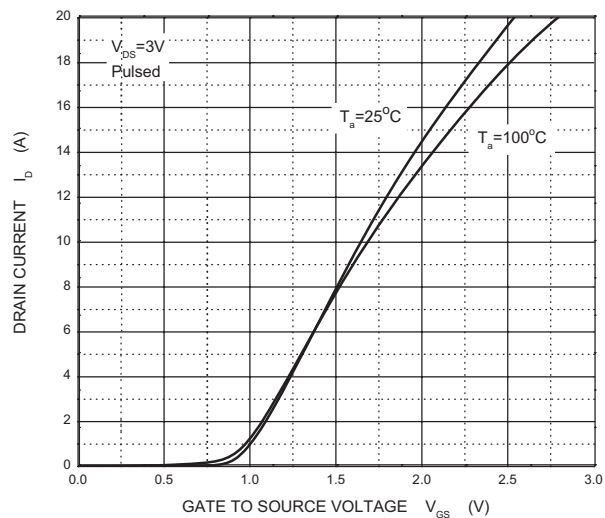
**Notes :**

1. Pulse Test : Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 0.5\%$ .
2. Guaranteed by design, not subject to production testing.

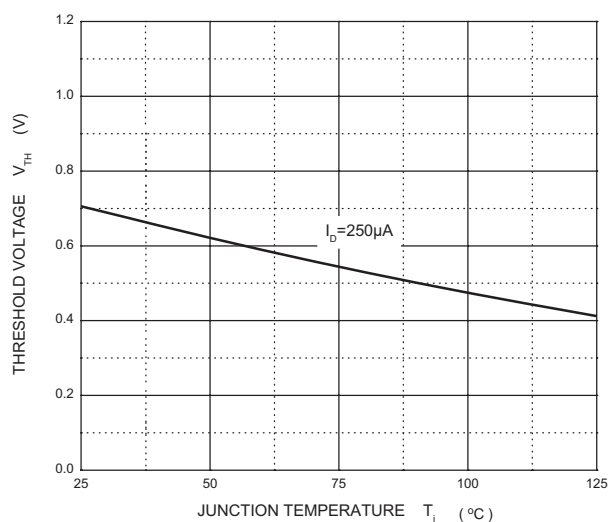
Output Characteristics



Transfer Characteristics



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

### \*\*\*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.