Micro Commercial Components

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MCS2010

Dual N-Channel MOSFET

Features

- TrenchFET Power MOSFET
- Excellent $R_{DS(ON)}$ and low gate charge
- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking:S2010

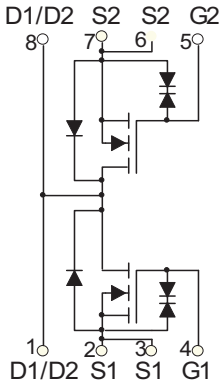
Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	20	V
I_D	Drain Current-Continuous	10	A
I_{DM}	Pulsed Drain Current (note1)	36	A
V_{GS}	Gate-source Voltage	± 10	V
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	125	℃/W
T_J	Operating Junction Temperature	-55 to +150	℃
T_{STG}	Storage Temperature	-55 to +150	℃

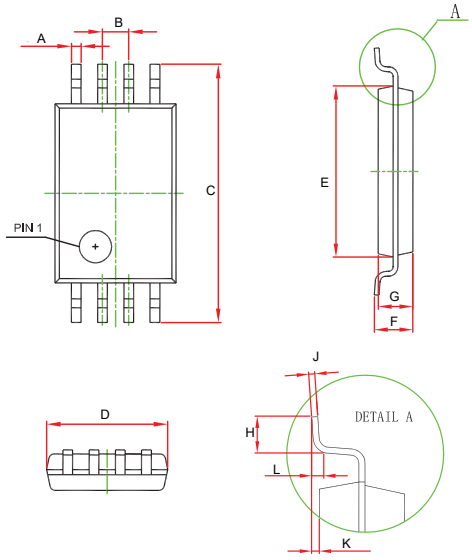
Notes:

1. Repetitive Rating: Pulse width limited by junction temperature.

Equivalent Circuit



TSSOP-8



Dimensions					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.007	.012	0.190	0.300	
B	0.026BSC.		0.650BSC.		
C	0.246	0.258	6.250	6.550	
D	0.114	0.122	2.900	3.100	
E	0.169	0.177	4.300	4.500	
F	---	0.047	---	1.200	
G	0.031	0.039	0.800	1.000	
H	0.020	0.028	0.500	0.700	
J	0.004	0.008	0.090	0.200	
K	0.002	0.006	0.050	0.150	
L	0.010TYP.		0.250TYP.		

ELECTRICAL CHARACTERISTICS(T_a=25℃ unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	20			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =20V,V_{GS} = 0V			1	uA
Gate-body leakage current	I_{GSS}	V_{GS} =±10V, V_{DS} = 0V			±10	uA
Gate threshold voltage (note 3)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.3		1	V
Drain-source on-resistance(note 3)	$R_{DS(on)}$	V_{GS} =4.5V, I_D =10A	5.5		9.5	mΩ
		V_{GS} =4V, I_D =10A	5.8		10	mΩ
		V_{GS} =3.5V, I_D =9A			10.5	mΩ
		V_{GS} =3.1V, I_D =9A	3		11.5	mΩ
		V_{GS} =2.5V, I_D =8A	8		13	mΩ
Forward tranconductance(note 3)	g_{FS}	V_{DS} =5V, I_D =10A		65		S
Diode forward voltage (note 3)	V_{SD}	I_S=1A, V_{GS} = 0V			1	V
DYNAMIC PARAMETERS (note 4)						
Input Capacitance	C_{iss}	V_{DS} =10V,V_{GS} =0V,f =1MHz	1000		1510	pF
Output Capacitance	C_{oss}		150		290	pF
Reverse Transfer Capacitance	C_{rss}		100		235	pF
SWITCHING PARAMETERS (note 4)						
Turn-on delay time	$t_{d(on)}$	V_{GS}=4.5V,V_{DS}=10V, R_{GEN}=3Ω,R_L=1Ω		1.1		ns
Turn-on rise time	t_r			2.6		ns
Turn-off delay time	$t_{d(off)}$			7		ns
Turn-off fall time	t_f			7.4		ns
Total Gate Charge	Q_g	V_{DS}=10V,V_{GS}=4.5V I_D=10A	10		15	nC
Gate-Source Chage	Q_{gs}			5.5		nC
Gage-Drain Charge	Q_{gd}			6.5		nC

Notes :

1.Repetitive rating：Pluse width limited by maximum junction temperature

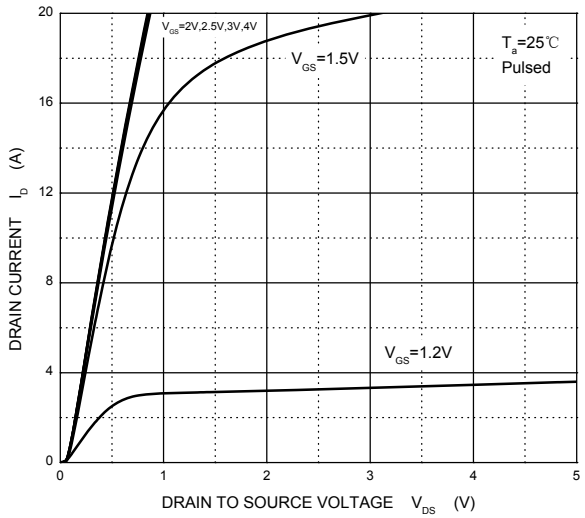
2.Surface mounted on FR4 board，t≤10 sec.

3. Pulse test : Pulse width≤300μs, duty cycle≤2%.

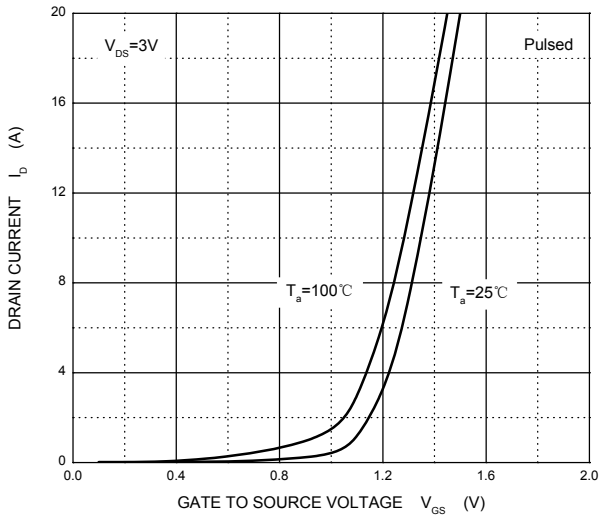
4. Guaranteed by design, not subject to production.

Typical Characteristics

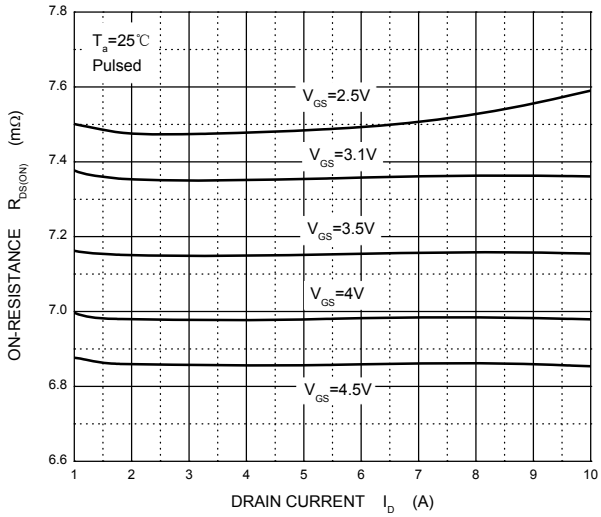
Output Characteristics



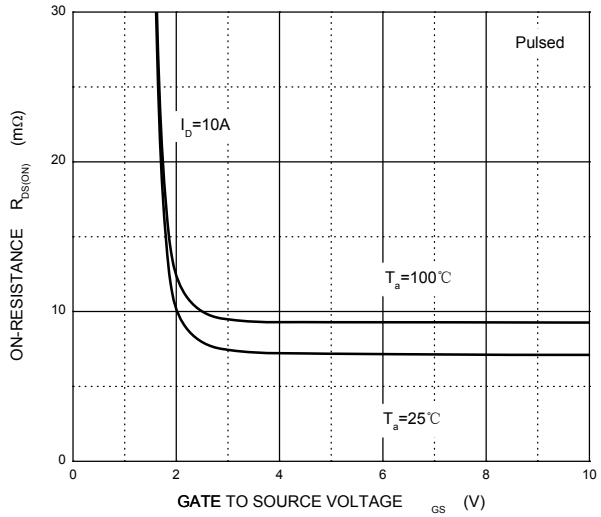
Transfer Characteristics



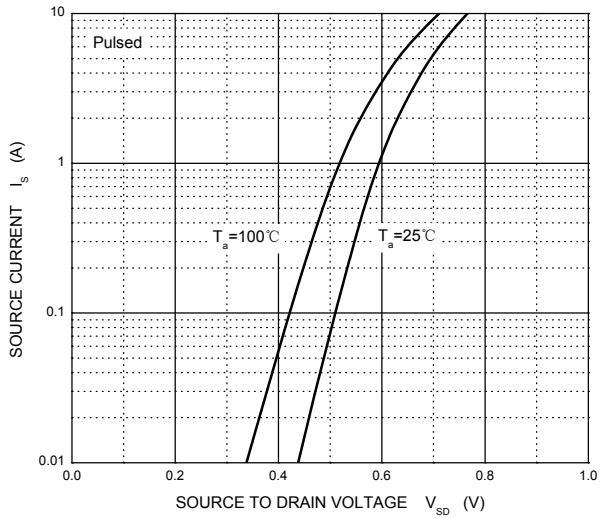
$R_{DS(ON)}$ —— I_D



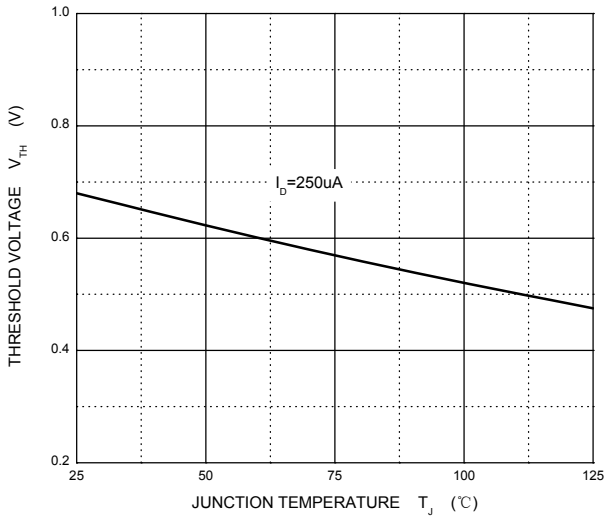
$R_{DS(ON)}$ —— V_{GS}



I_S —— V_{SD}



Threshold Voltage



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Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel:5Kpcs/Reel

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