



Micro Commercial Components



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

MCCD2004

Features

- Advanced trench MOSFET process technology
- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking:2004

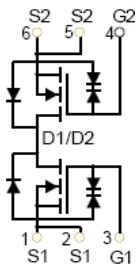
Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
V _{DS}	Drain-source Voltage	20	V
I _D	Drain Current-Continuous	10	A
I _{DM}	Pulsed Drain Current (note1)	40	A
V _{GS}	Gate-source Voltage	± 12	V
R _{θJA}	Thermal Resistance Junction to Ambient	125	°C/W
T _J	Operating Junction Temperature	-55 to +150	°C
T _{STG}	Storage Temperature	-55 to +150	°C

Notes:

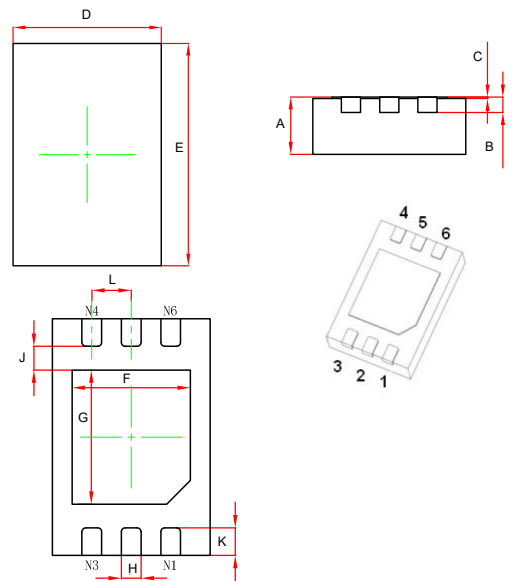
1. Repetitive Rating: Pulse width limited by junction temperature.

Equivalent Circuit



Dual N-Channel Power MOSFET

DFN2030-6



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.028	.032	0.700	0.800	
B	0.008REF.		0.203REF.		
C	0.000	0.002	0.000	0.050	
D	0.077	0.081	1.950	2.050	
E	0.116	0.120	2.950	3.050	
F	0.055	0.063	1.400	1.600	
G	0.063	0.071	1.600	1.800	
H	0.008	0.012	0.200	0.300	
J	0.008	---	0.200	---	
K	0.018	0.026	0.300	0.400	
L	0.020TYP.		0.500TYP.		

ELECTRICAL CHARACTERISTICS(T_a=25°C unless otherwise specified)

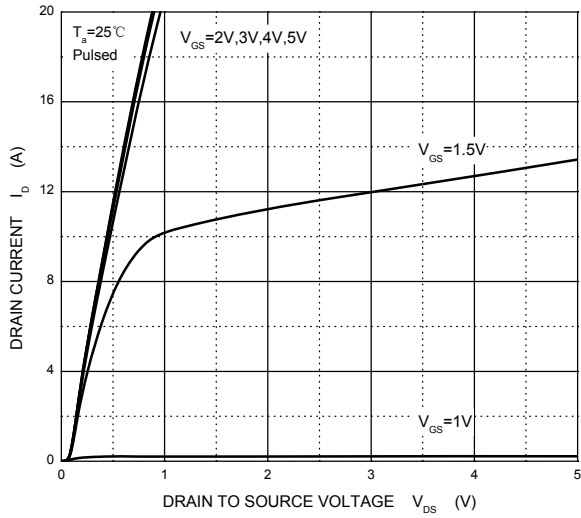
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =16V, V _{GS} = 0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±10V, V _{DS} = 0V			±10	μA
Gate threshold voltage (note 1)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.5		1	V
Drain-source on-resistance (note 1)	R _{DS(on)}	V _{GS} =10V, I _D =8A			10	mΩ
		V _{GS} =4.5V, I _D =5A			12	mΩ
		V _{GS} =3.8V, I _D =5A			13	mΩ
		V _{GS} =2.5V, I _D =4A			17	mΩ
Forward tranconductance (note 1)	g _{FS}	V _{DS} =5V, I _D =8A		36		S
Diode forward voltage(note 1)	V _{SD}	I _S =1A, V _{GS} = 0V			1	V
DYNAMIC PARAMETERS (note 2)						
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f =1MHz		1955		pF
Output Capacitance	C _{oss}			220		pF
Reverse Transfer Capacitance	C _{rss}			180		pF
Total gate charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =8A		18.5		nC
Gate-source charge	Q _{gs}			2		nC
Gate-drain charge	Q _{gd}			5.1		nC
SWITCHING PARAMETERS(note 2)						
Turn-on delay time	t _{d(on)}	V _{GS} =10V, V _{DD} =10V, R _L =1.2Ω, R _{GEN} =3Ω		3		ns
Turn-on rise time	t _r			7.4		ns
Turn-off delay time	t _{d(off)}			55		ns
Turn-off fall time	t _f			12.3		ns

Notes :

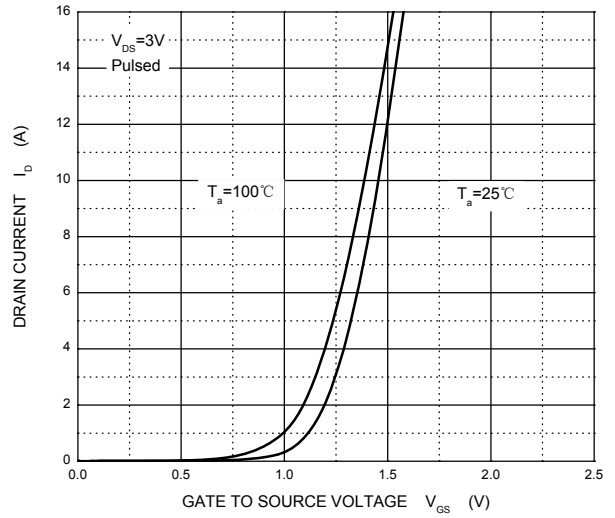
1. Pulse Test : Pulse width≤300μs, duty cycle≤0.5%.
2. Guaranteed by design, not subject to production testing.

Typical Characteristics

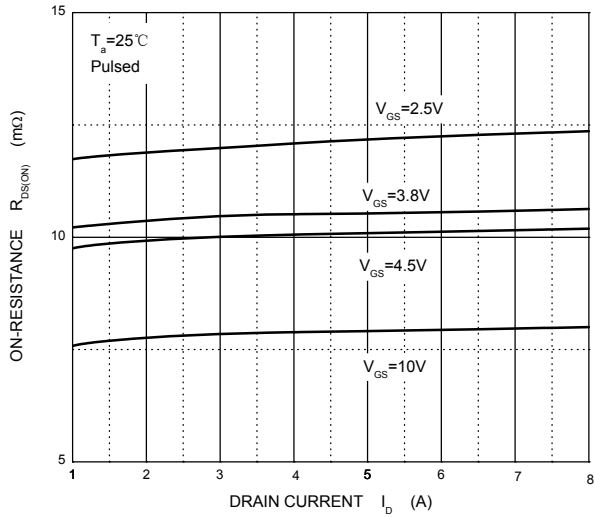
Output Characteristics



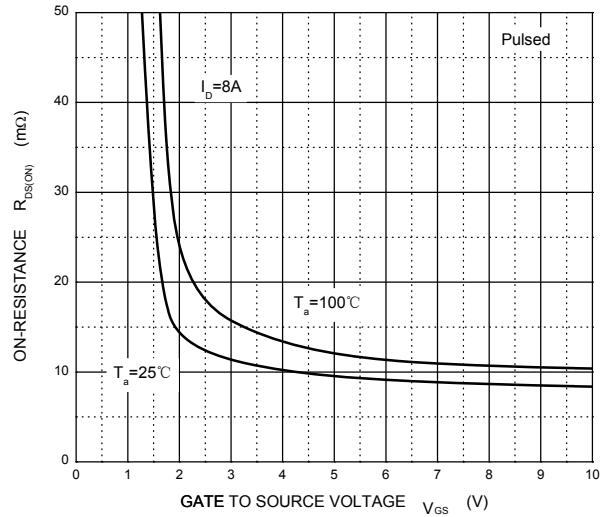
Transfer Characteristics



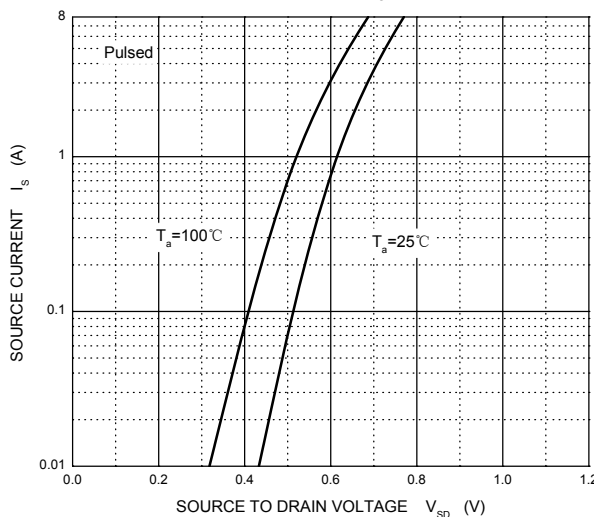
$R_{DS(ON)}$ — I_D



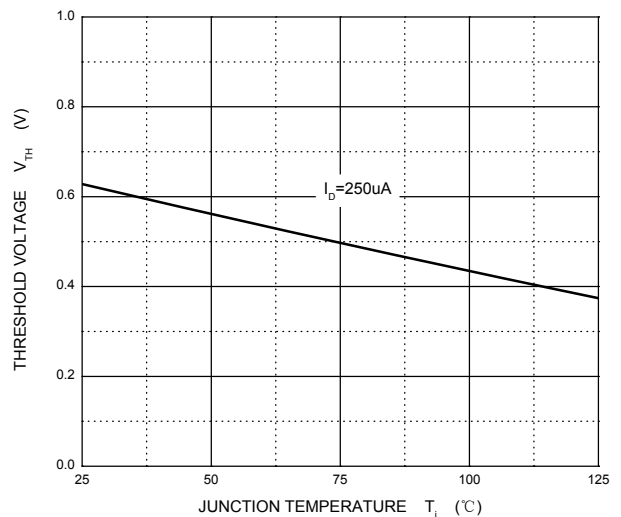
$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage





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Ordering Information :

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

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

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