



Micro Commercial Components



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## MCCD2005

### Features

- Advanced trench MOSFET process technology
- Ultra low on-resistance with 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:2005

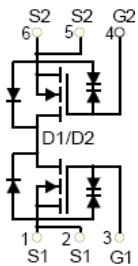
### Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
$V_{DS}$	Drain-source Voltage	20	V
$I_D$	Drain Current-Continuous	8	A
$I_{DM}$	Pulsed Drain Current (note1)	30	A
$V_{GS}$	Gate-source Voltage	$\pm 12$	V
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	125	$^{\circ}\text{C}/\text{W}$
$T_J$	Operating Junction Temperature	-55 to +150	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature	-55 to +150	$^{\circ}\text{C}$

#### Notes:

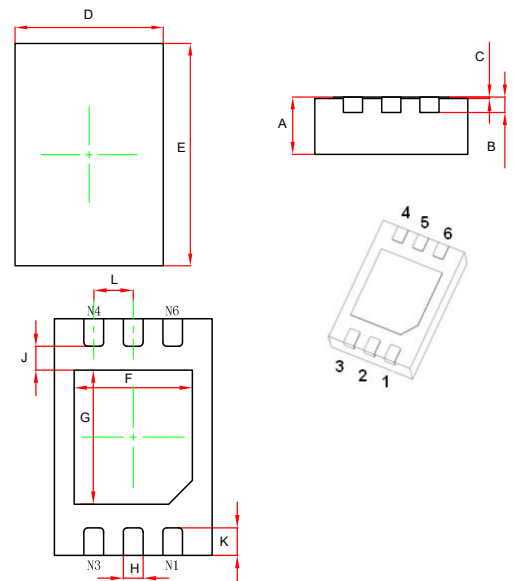
1. Repetitive Rating: Pulse width limited by junction temperature.

### 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.		

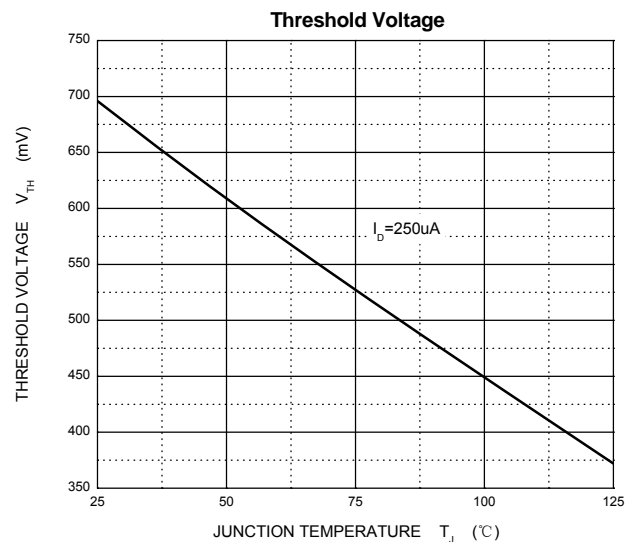
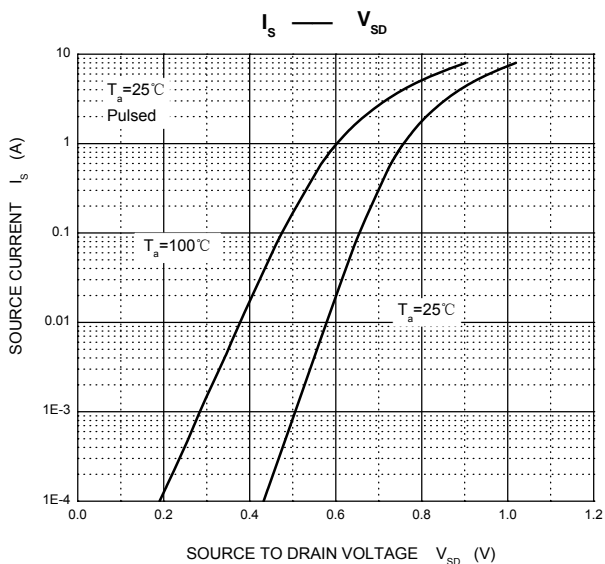
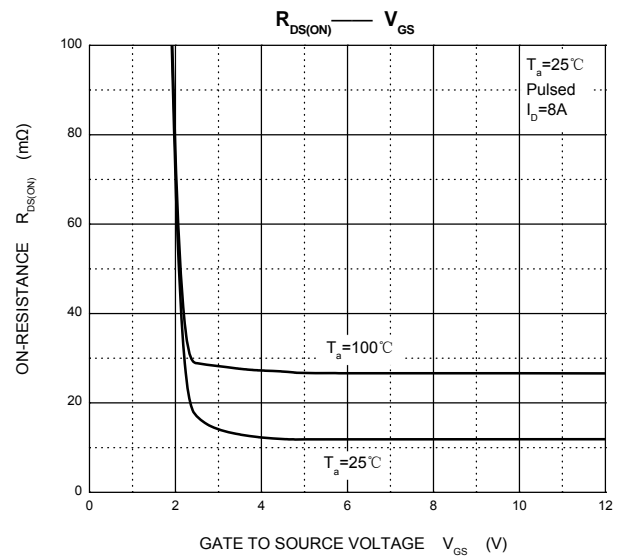
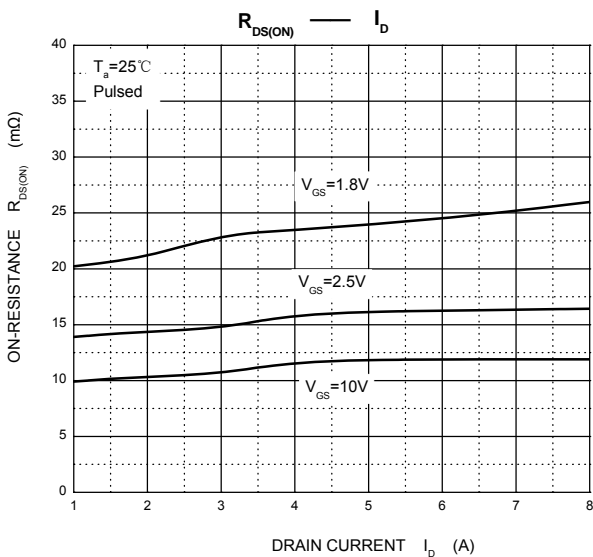
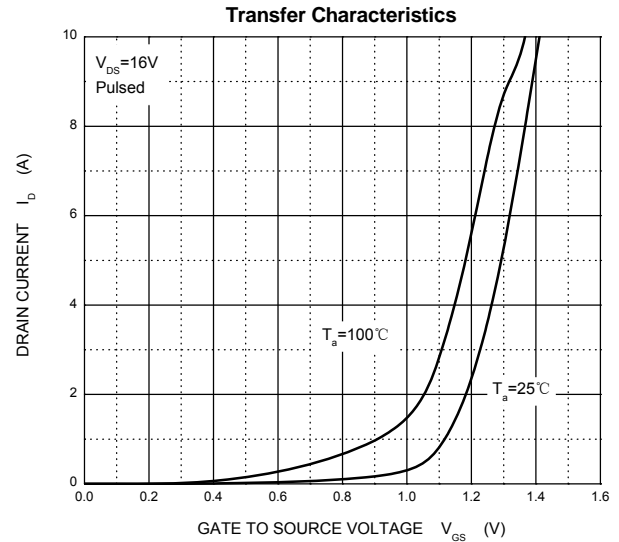
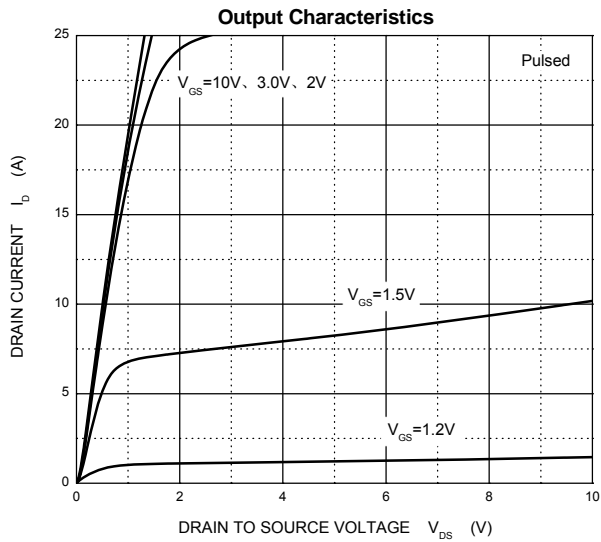
# **ELECTRICAL CHARACTERISTICS( $T_a=25^{\circ}\text{C}$ unless otherwise specified)**

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			10	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±10V, 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	0.5		1	V
Drain-source on-resistance (note 1)	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =8A			13	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =5A			14	mΩ
		V <sub>GS</sub> =3.8V, I <sub>D</sub> =5A			15.5	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =4A			19	mΩ
		V <sub>GS</sub> =1.8V, I <sub>D</sub> =3A			27	mΩ
Forward tranconductance (note 1)	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =8A		36		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		1800		pF
Output Capacitance	C <sub>oss</sub>			230		pF
Reverse Transfer Capacitance	C <sub>rss</sub>			200		pF
Total gate charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =8A		17.9		nC
Gate-source charge	Q <sub>gs</sub>			1.5		nC
Gate-drain charge	Q <sub>gd</sub>			4.7		nC
SWITCHING PARAMETERS(note 2)						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>GS</sub> =10V, V <sub>DD</sub> =10V, R <sub>L</sub> =1.2Ω, R <sub>GEN</sub> =3Ω		2.5		ns
Turn-on rise time	t <sub>r</sub>			7.2		ns
Turn-off delay time	t <sub>d(off)</sub>			49		ns
Turn-off fall time	t <sub>f</sub>			10.8		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.

## Typical Characteristics





## 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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