



Micro Commercial Components



Micro Commercial Components  
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## MCT03N06

### Features

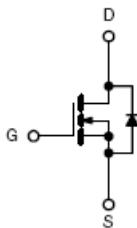
- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- High power and current handing capability
- Surface mount package

### N-Channel Enhancement Mode Field Effect Transistor

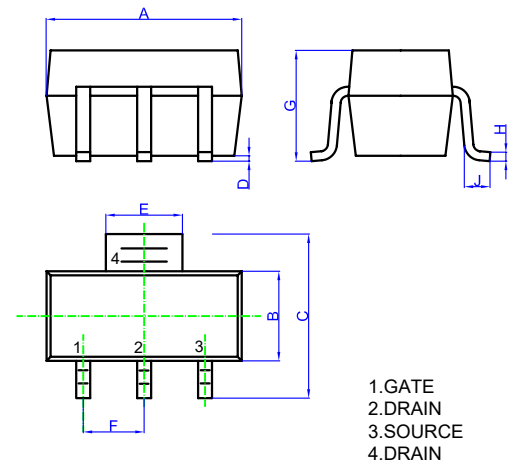
#### Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
$V_{DS}$	Drain-source Voltage	60	V
$I_D$	Continuous Drain Current	3.0	A
$I_{DM}$	Pulsed Drain Current (note1)	10	A
$V_{GS}$	Gate-source Voltage	$\pm 20$	V
$P_D$	Total Power Dissipation	1.2	W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	104	$^{\circ}\text{C}/\text{W}$
$T_J$	Operating Junction Temperature	-55 to +150	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature	-55 to +150	$^{\circ}\text{C}$

#### Internal Block Diagram



#### SOT-223



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.248	.264	6.30	6.70	
B	.130	.146	3.30	3.70	
C	.264	.287	6.70	7.30	
D	.001	.004	0.02	0.10	
E	.114	.122	2.90	3.10	
F	.091		2.30		
G	--	.071	--	1.80	
H	.009	.014	0.23	0.35	
J	.030	--	0.75	--	

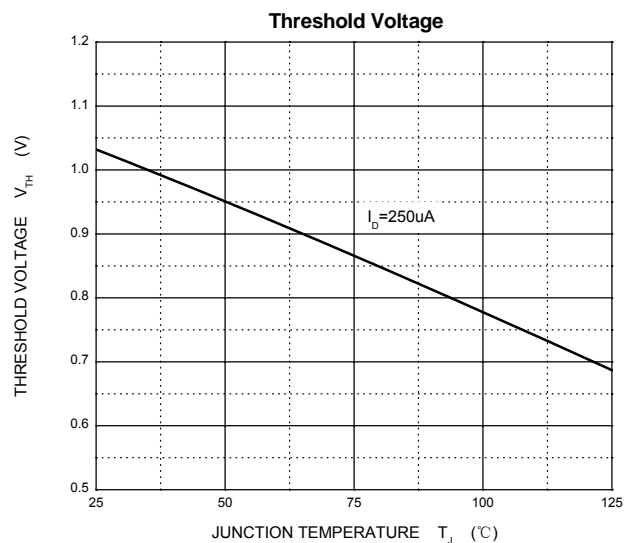
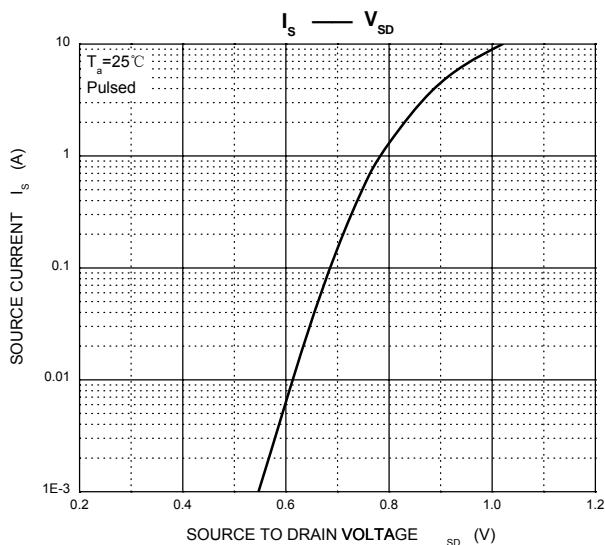
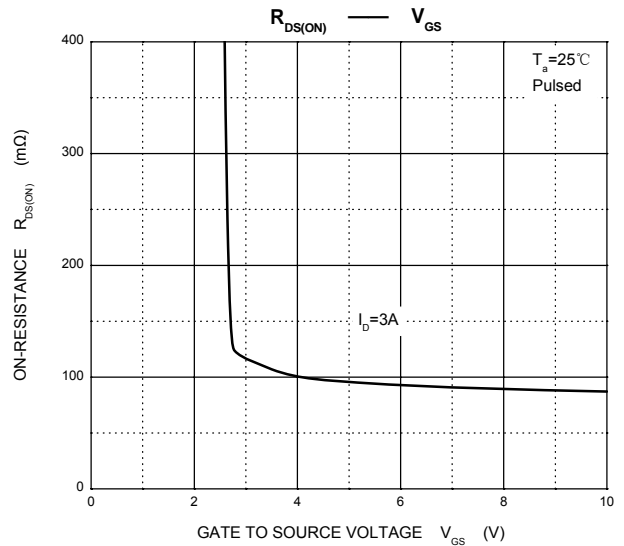
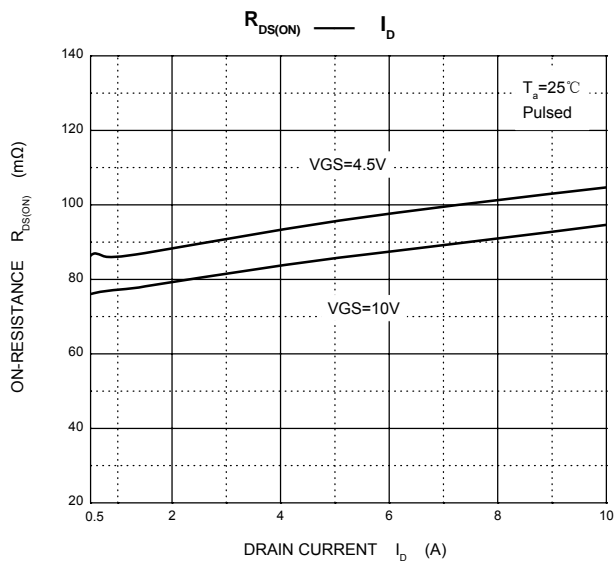
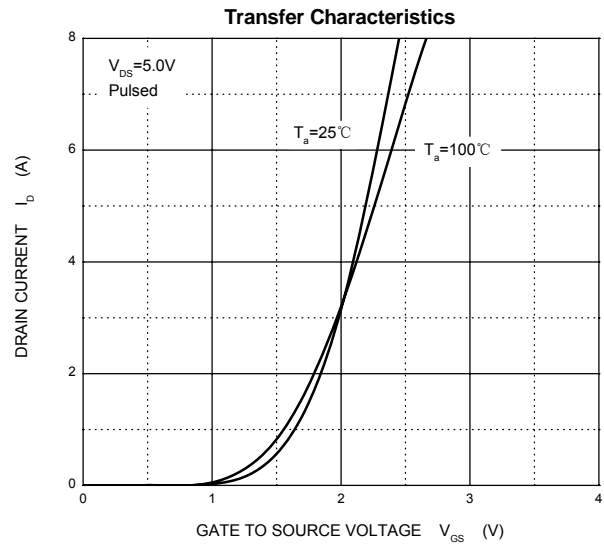
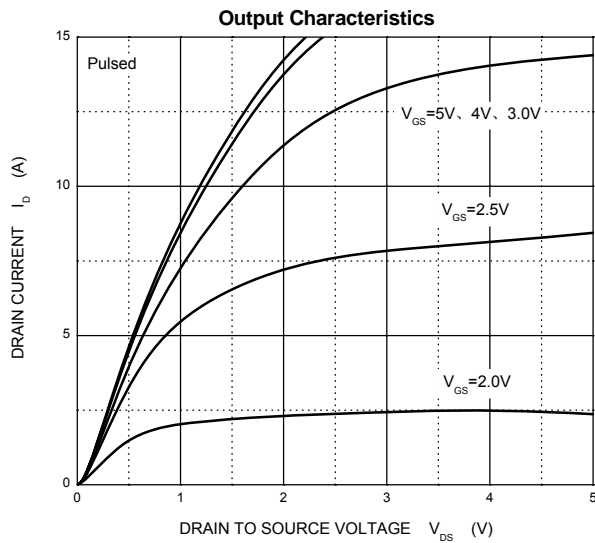
# **ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 60V, V_{GS} = 0V$			1	$\mu A$
Gate-body leakage current	$I_{GSS}$				$\pm 100$	nA
Gate threshold voltage (note 3)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5		2	V
Drain-source on-resistance (note 3)	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 3A$			105	m $\Omega$
		$V_{GS} = 4.5V, I_D = 3A$			125	m $\Omega$
Forward tranconductance (note 3)	$g_{FS}$	$V_{DS} = 15V, I_D = 2A$	1.4			S
Diode forward voltage (note 3)	$V_{SD}$	$I_S = 3A, V_{GS} = 0V$			1.2	V
DYNAMIC CHARACTERISTICS (note 4)						
Input Capacitance	$C_{iss}$	$V_{DS} = 30V, V_{GS} = 0V, f = 1MHz$		247		pF
Output Capacitance	$C_{oss}$			34		pF
Reverse Transfer Capacitance	$C_{rss}$			19.5		pF
SWITCHING CHARACTERISTICS (note 4)						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = 10V, V_{DD} = 30V,$ $I_D = 1.5A, R_{GEN} = 1\Omega$		6		ns
Turn-on rise time	$t_r$			15		ns
Turn-off delay time	$t_{d(off)}$			15		ns
Turn-off fall time	$t_f$			10		ns
Total Gate Charge	$Q_g$	$V_{DS} = 30V, V_{GS} = 4.5V, I_D = 3A$		6		nC
Gate-Source Charge	$Q_{gs}$			1		nC
Gate-Drain Charge	$Q_{gd}$			1.3		nC

## **Notes :**

1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board ,  $t_s \leq 10s$ .
3. Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 0.5\%$ .
4. Guaranteed by design, not subject to producing.

## Typical Characteristics



## Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel: 2.5Kpcs/Reel

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

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