



Micro Commercial Components



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# MCU05N60A

## N-Channel Enhancement Mode Field Effect Transistor

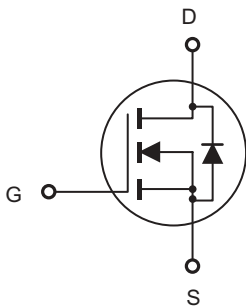
### Features

- High Current Rating
- Lower Capacitance
- Halogen free available upon request by adding suffix "-HF"
- Lower  $R_{DS(ON)}$
- Lower Total Gate Charge
- Tighter VSD Specifications
- Avalanche Energy Specified
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

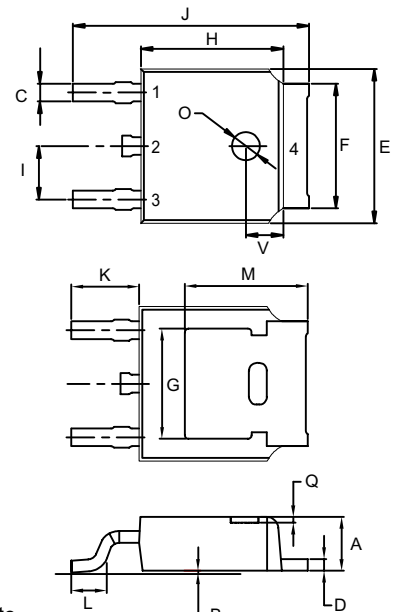
### Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
$V_{DS}$	Drain-source Voltage	600	V
$I_D$	Drain Current-Continuous	4.5	A
$E_{AS}$	Single Pulsed Avalanche Energy(note1)	210	mJ
$V_{GSS}$	Gate-source Voltage	$\pm 30$	V
$P_D$	Power Dissipation(note2, $T_c=25^\circ\text{C}$ )	1.25	W
	Maximum Power Dissipation(note3, $T_c=25^\circ\text{C}$ )	120	W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	100	$^\circ\text{C/W}$
$T_J$	Operating Junction Temperature	-55 to +150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	-55 to +150	$^\circ\text{C}$
$T_L$	Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	260	$^\circ\text{C}$

### Internal Block Diagram



### DPAK



- 1. Gate
- 2&4. Drain
- 3. Source

DIM	DIMENSIONS				NOTE
	INCHES		MM		
A	0.087	0.094	2.20	2.40	
B	0.000	0.005	0.00	0.13	
C	0.026	0.034	0.66	0.86	
D	0.018	0.023	0.46	0.58	
E	0.256	0.264	6.50	6.70	
F	0.201	0.215	5.10	5.46	
G	0.190		4.83		
H	0.236	0.244	6.00	6.20	
I	0.086	0.094	2.18	2.39	
J	0.386	0.409	9.80	10.40	
K	0.114		2.90		
L	0.055	0.067	1.40	1.70	
M	0.211		5.35		
O	0.043	0.051	1.10	1.30	
Q	0.000	0.012	0.00	0.30	
V	0.063		1.60		

**Electrical characteristics (T<sub>a</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	600			V
Drain-source diode forward voltage(note4)	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> =4.5A			1.4	
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =600V, V <sub>GS</sub> =0V			1	μA
Gate-body leakage current, forward(note4)	I <sub>GSSF</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =30V			100	nA
Gate-body leakage current, reverse(note4)	I <sub>GSSR</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =-30V			-100	
Gate-threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	2.0		4.0	V
Static drain-source on-resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =2.25A			2.5	Ω
Forward transconductance(note4)	g <sub>fs</sub>	V <sub>DS</sub> =40V, I <sub>D</sub> =2.25A	2.9			S
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f =1MHz			670	pF
Output capacitance	C <sub>oss</sub>				72	
Reverse transfer capacitance	C <sub>rss</sub>				8.5	
Turn-on delay time (note4)	t <sub>d(on)</sub>	V <sub>DD</sub> =300V, R <sub>G</sub> =25Ω, I <sub>D</sub> =4.5A			30	ns
Turn-on rise time (note4)	t <sub>r</sub>				90	
Turn-off delay time (note4)	t <sub>d(off)</sub>				85	
Turn-off fall time (note4)	t <sub>f</sub>				100	

**Notes :**

1. EAS Condition:L=20mH, I<sub>AS</sub>=4.5 A, V<sub>DD</sub>=50V, R<sub>G</sub>=25Ω, T<sub>J</sub>=25°C.
2. This test is performed with no heat sink at T<sub>a</sub>=25°C
3. This test is performed with infinite heat sink at T<sub>c</sub>=25°C
4. Pulse Test : Pulse width≤300μs, duty cycle ≤2%.



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### 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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