



Micro Commercial Components



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MCU60N04

N-Channel Enhancement Mode Field Effect Transistor

Features

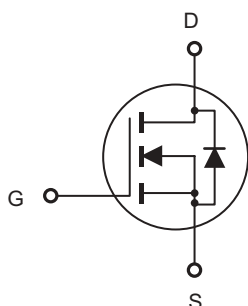
- High density cell design for ultra low R_{dson}
- Fully characterized avalanche voltage and current
- Halogen free available upon request by adding suffix "-HF"
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

Maximum Ratings @ 25°C Unless Otherwise Specified

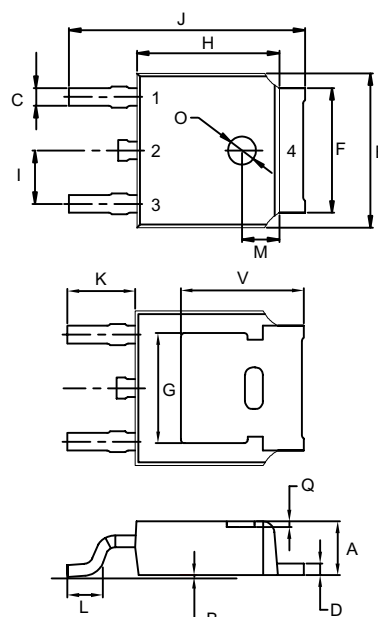
Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	40	V
I_D	Drain Current-Continuous	60	A
I_{DM}	Drain Current-Pulsed	240	A
E_{AS}	Single Pulsed Avalanche Energy(*)	400	mJ
V_{GSS}	Gate-source Voltage	± 20	V
P_D	Power Dissipation	1.25	W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	100	$^{\circ}C/W$
T_J	Operating Junction Temperature	-55 to +150	$^{\circ}C$
T_{STG}	Storage Temperature	-55 to +150	$^{\circ}C$

* E_{AS} condition: $T_J=25^{\circ}C, V_{DD}=20V, L=0.5mH, R_G=25\Omega$, Starting $T_J = 25^{\circ}C$

Internal Block Diagram



DPAK



- 1.GATE
- 2.DRAIN
- 3.SOURCE

DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
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	0.063		1.60		
O	0.043	0.051	1.10	1.30	
Q	0.000	0.012	0.00	0.30	
	0.211		5.35		

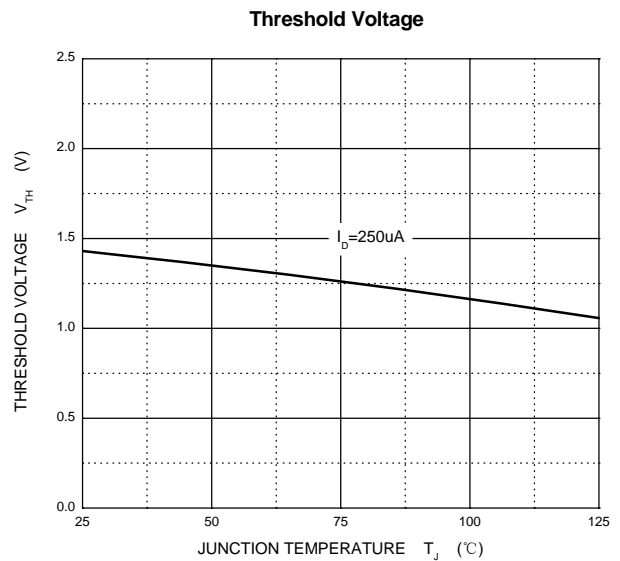
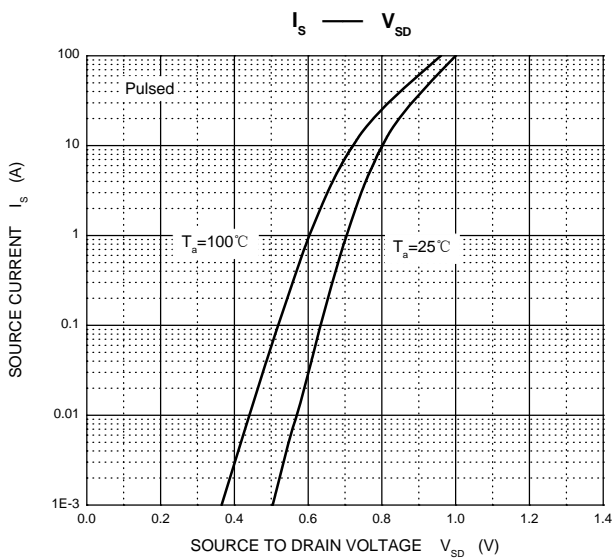
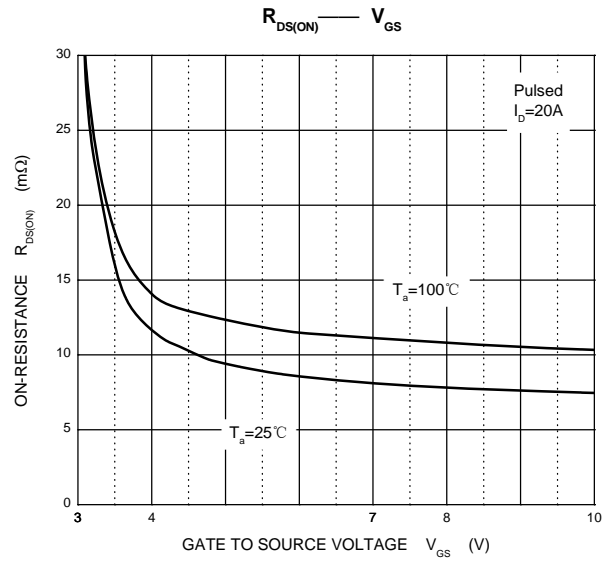
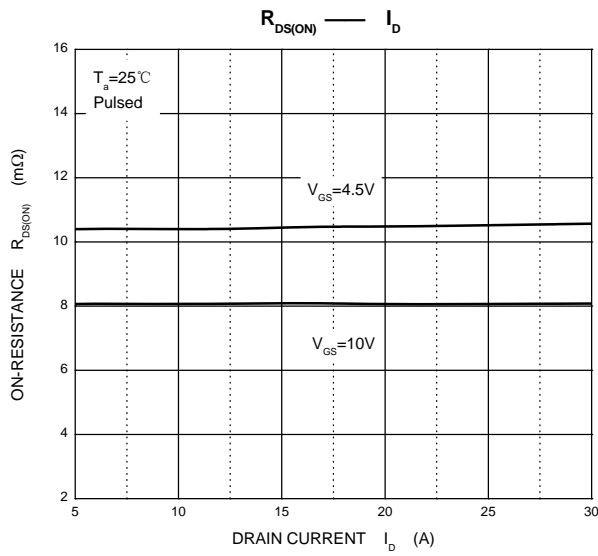
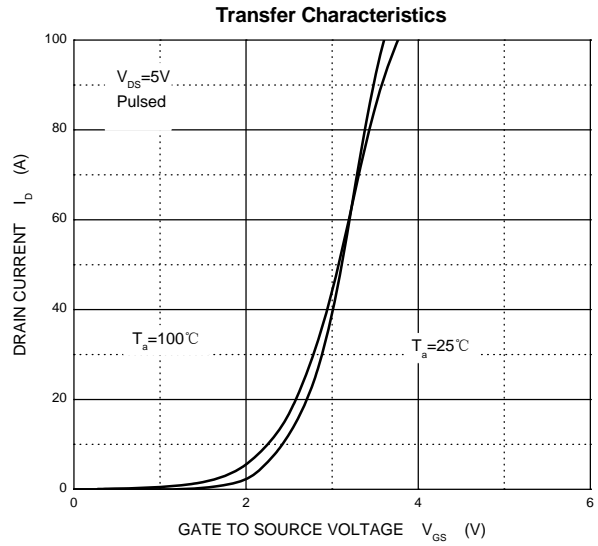
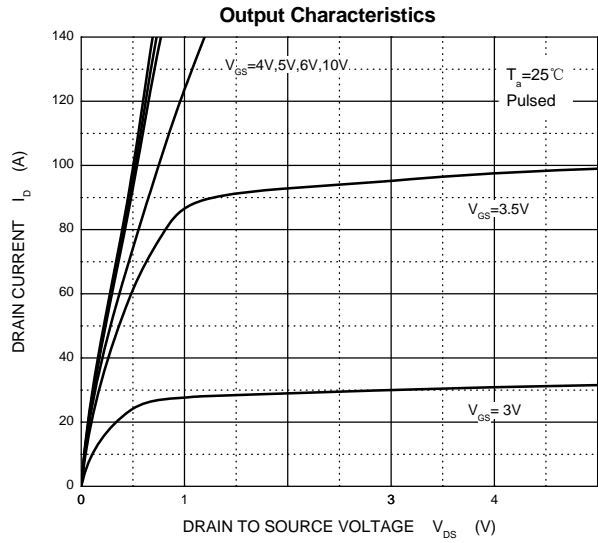
Electrical characteristics (T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	40			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =40V, V _{GS} =0V			1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
On characteristics (note1)						
Gate-threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.2	1.5	2.5	V
Static drain-source on-state resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		8	13	mΩ
		V _{GS} =4.5V, I _D =20A		10.5	20	mΩ
Forward transconductance	g _{FS}	V _{DS} =10V, I _D =20A	15			S
Dynamic characteristics (note 2)						
Input capacitance	C _{iss}	V _{DS} =20V, V _{GS} =0V, f =1MHz		1800		pF
Output capacitance	C _{oss}			280		
Reverse transfer capacitance	C _{rss}			190		
Switching characteristics (note 2)						
Total gate charge	Q _g	V _{DS} =20V, V _{GS} =10V, I _D =20A		29		nC
Gate-source charge	Q _{gs}			4.5		
Gate-drain charge	Q _{gd}			6.4		
Turn-on delay time	t _{d(on)}	V _{DD} =20V, I _D =2A, V _{GS} =10V, R _G =3Ω, R _L =1Ω		6.4		ns
Turn-on rise time	t _r			17.2		
Turn-off delay time	t _{d(off)}			29.6		
Turn-off fall time	t _f			16.8		
Drain-Source Diode Characteristics						
Drain-source diode forward voltage(note1)	V _{SD}	V _{GS} =0V, I _S =20A			1.2	V
Continuous drain-source diode forward current	I _S				60	A
Pulsed drain-source diode forward current	I _{SM}				240	A

Notes:

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

Typical Characteristics





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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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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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