



ZIBO MICRO COMMERCIAL
COMPONENTS CORP.



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MCD04N60

N-Channel Enhancement Mode Field Effect Transistor

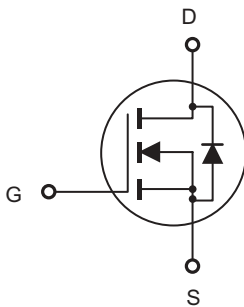
Features

- High Current Rating
- Lower Capacitance
- 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

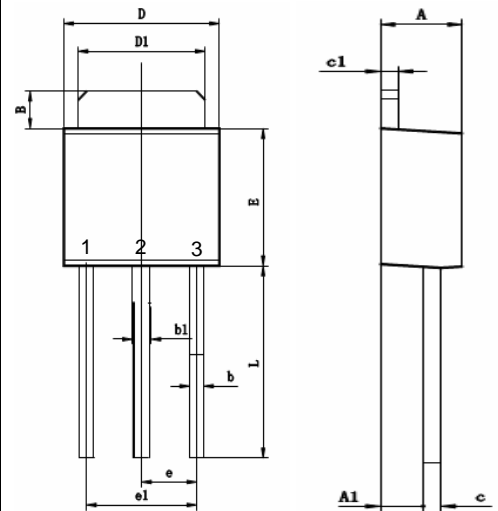
Maximum Ratings @ 25°C Unless Otherwise Specified

Symbol	Parameter	Rating	Unit
V_{DS}	Drain-source Voltage	600	V
I_D	Drain Current-Continuous	4.0	A
I_S	Continuous Drain-Source Diode Forward Current	4.0	A
V_{GSS}	Gate-source Voltage	± 20	V
E_{AS}	Single Pulsed Avalanche Energy(note1)	80	mJ
P_D	Total Power Dissipation	2.0	W
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	62.5	$^{\circ}C/W$
T_J	Operating Junction Temperature	-55 to +150	$^{\circ}C$
T_{STG}	Storage Temperature	-55 to +150	$^{\circ}C$
T_L	Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	260	$^{\circ}C$

Internal Block Diagram



TO-251



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

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.087	.094	2.20	2.40	
A1	.042	.054	1.05	1.35	
B	.053	.065	1.35	1.65	
b	.020	.028	0.50	0.70	
b1	.028	.035	0.07	0.09	
c	.017	.023	0.43	0.58	
c1	.017	.023	0.43	0.58	
D	.250	.262	6.35	6.65	
D1	.205	.213	5.20	5.40	
E	.213	.224	5.40	5.70	
e1	0.091TYP		2.300TYP		
e	.177	.185	4.50	4.70	
L	.295	.311	7.50	7.90	

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	600			V
Drain-source diode forward voltage(note2)	V _{SD}	V _{GS} = 0V, I _S =4.0A			1.5	
Zero gate voltage drain current	I _{DSS}	V _{DS} =600V, V _{GS} =0V			25	μA
Gate-body leakage current, forward(note2)	I _{GSSF}	V _{DS} =0V, V _{GS} =30V			100	nA
Gate-body leakage current, reverse(note2)	I _{GSSR}	V _{DS} =0V, V _{GS} =-30V			-100	
On characteristics (note2)						
Gate-threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0		4.0	V
Static drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =2.0A			3.0	Ω
Forward transconductance	g _{fs}	V _{DS} =50V, I _D =2A	2.5			S
Dynamic characteristics (note 3)						
Input capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f =1MHz		540	760	pF
Output capacitance	C _{oss}			125	180	
Reverse transfer capacitance	C _{rss}			8.0	20	
Switching characteristics						
Total gate charge	Q _g	V _{DS} =480V, V _{GS} =10V, I _D =4.0A		5.0	10	nC
Gate-source charge	Q _{gs}			2.7		
Gate-drain charge	Q _{gd}			2.0		
Turn-on delay time (note3)	t _{d(on)}	V _{DD} =300V, V _{GS} =10V, R _G =9.1Ω, I _D =4.0A		12	20	ns
Turn-on rise time (note3)	t _r			7.0	10	
Turn-off delay time (note3)	t _{d(off)}			19	40	
Turn-off fall time (note3)	t _f			10	20	

Notes :

- L=10mH, I_L=4 A, V_{DD}=100V, V_{GS}=10V, R_G=25Ω, Starting T_J=25°C.
- Pulse Test : Pulse width≤300μs, duty cycle ≤2%.
- These parameters have no way to verify.



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Ordering Information :

Device	Packing
Part Number-BP	Bulk;4Kpcs/Box

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