南京集正电子有限公司
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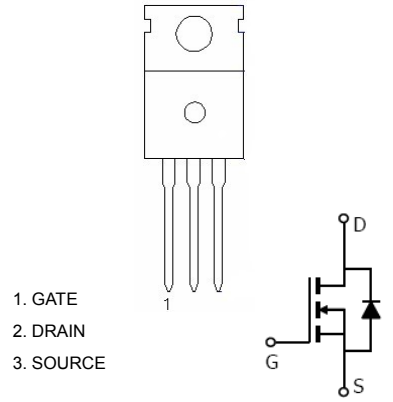
TO-220AB Plastic-Encapsulate MOSFETS

4N60 600V N-Channel Power MOSFET

General Description

This advanced high voltage MOSFET is designed to wighstand high energy in the avalanche mode and switch efficiently. This new high energy device also offers a drain-to-source diode wigh fast recovery time. Desighed for high voltage, high speed switching applications such as power supplies, converters, power motor controls and bridge circuits.

TO-220AB



1. GATE
2. DRAIN
3. SOURCE

FEATURE

- High Current Rating
- Lower $R_{ds(on)}$
- Lower Capacitance
- Lower Total Gate Charge
- Tighter VSD Specifications
- Avalanche Energy Specified

Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GSS}	±30	
Continuous Drain Current	I_D	4.0	A
Continuous Drain-Source Diode Forward Current	I_S	4.0	
Single Pulsed Avalanche Energy (note1)	E_{AS}	260	mJ
Thermal Resistance fromJunction to Ambient	$R_{\theta JA}$	62.5	℃/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 ~+150	℃
Maximum lead temperure for soldering purposes , 1/8”from case for 5 seconds	T_L	260	

Electrical characteristics (T_a=25℃ 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		2.0	3.0	Ω
Forward transconductance	g_{fs}	V_{DS} =50V, I_D =2A	2.0	2.6		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 :

1. L=30mH, I_L=4 A, V_{DD}=100V, V_{GS}=10V,R_G=25Ω,Starting T_J=25℃.
2. Pulse Test : Pulse width≤300μs, duty cycle ≤2%.
3. These parameters have no way to verify.