

TO-220AB Plastic-Encapsulate MOSFETS

5N60

N-Channel Power MOSFET

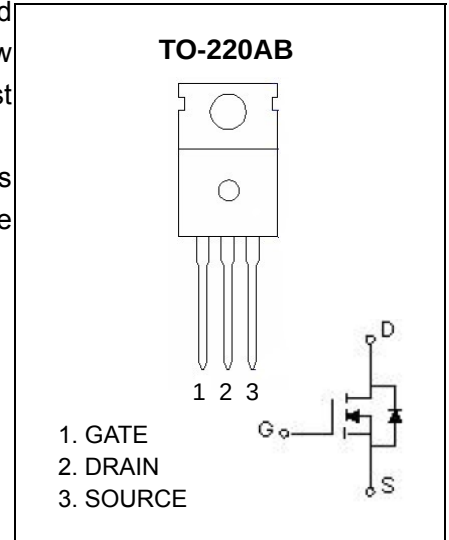
Description

This advanced high voltage MOSFET is designed to withstand high energy in the avalanche mode and switch efficiently. This new high energy device also offers a drain-to-source diode with fast recovery time.

Designed for high voltage, high speed switching applications such as power supplies, converters, power motor controls and bridge circuits.

FEATURES

- Low $R_{DS(on)}$
- Lower Capacitances
- Lower Total Gate Charge
- Tighter V_{SD} Specifications
- Avalanche Energy Specified



Maximum ratings ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	± 30	
Continuous Drain Current	I_D	4.5	A
Single Pulsed Avalanche Energy (note1)	E_{AS}	250	mJ
Power Dissipation (note2, $T_a=25^{\circ}\text{C}$)	P_D	2	W
Maximum Power Dissipation (note3, $T_c=25^{\circ}\text{C}$)		120	
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-50 ~ +150	

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Gate-Body Leakage Current (note 4)	I _{GSS}	V _{DS} =0V, V _{GS} =±30V			±100	nA
Drain-Source Breakdown Voltage	V _{(BR) DSS}	V _{GS} = 0V, I _D =250μA	600			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.0		4.0	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =600V, V _{GS} =0V			1	μA
Forward transconductance	g _{fs}	V _{DS} =40V, I _D =2.25A	2.9			S
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =2.25A			2.5	Ω
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f =1MHz			670	pF
Output Capacitance	C _{oss}				72	
Reverse Transfer Capacitance	C _{rss}				8.5	
Turn-On Delay Time (note 4)	t _{d(on)}	V _{DD} =300V, I _D =4.5A, R _G =25Ω			30	ns
Rise Time (note 4)	t _r				90	
Turn-Off Delay Time (note 4)	t _{d(off)}				85	
Fall Time (note 4)	t _f				100	
Forward on Voltage (note 4)	V _{SD}	V _{GS} =0V, I _S =4.5A			1.4	V

Notes:

1. E_{AS} condition: T_J=25°C , V_{DD}=50V, R_G=25Ω, L=16mH, I_{AS}=5A
2. This test is performed with no heat sink at T_a=25°C.
3. This test is performed with infinite heat sink at T_c=25°C.
4. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤2%.