



## TO-220-3L Plastic-Encapsulate MOSFETS

### CJP05N60 N-Channel Power MOSFET

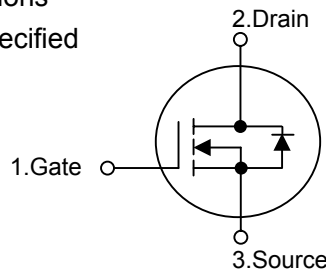
#### Description

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.

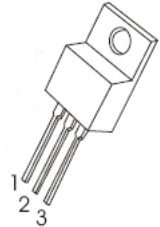
Designed for high voltage, high speed switching applications such as power supplies, converters, power motor controls and bridge circuits.

#### FEATURES

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



TO-220-3L



1. GATE
2. DRAIN
3. SOURCE

#### 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	$V_{GS}$	$\pm 30$	
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<sub>a</sub>=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Gate-Body Leakage Current (note 4)	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±30V			±100	nA
Drain-Source Breakdown Voltage	V <sub>(BR) DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	600			V
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	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =600V, V <sub>GS</sub> =0V			1	μA
Forward transconductance	g <sub>fs</sub>	V <sub>DS</sub> =40V, I <sub>D</sub> =2.25A	2.9			S
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =2.25A			2.5	Ω
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 (note 4)	t <sub>d(on)</sub>	V <sub>DD</sub> =300V, I <sub>D</sub> =4.5A, R <sub>G</sub> =25Ω			30	ns
Rise Time (note 4)	t <sub>r</sub>				90	
Turn-Off Delay Time (note 4)	t <sub>d(off)</sub>				85	
Fall Time (note 4)	t <sub>f</sub>				100	
Forward on Voltage (note 4)	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =4.5A			1.4	V

### Notes:

1. E<sub>AS</sub> condition: T<sub>j</sub>=25°C , V<sub>DD</sub>=50V, R<sub>G</sub>=25Ω, L=16mH, I<sub>AS</sub>=5A
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%.

# Typical Characteristics

# CJP05N60

