

TO-220-3L Plastic-Encapsulate MOSFETS

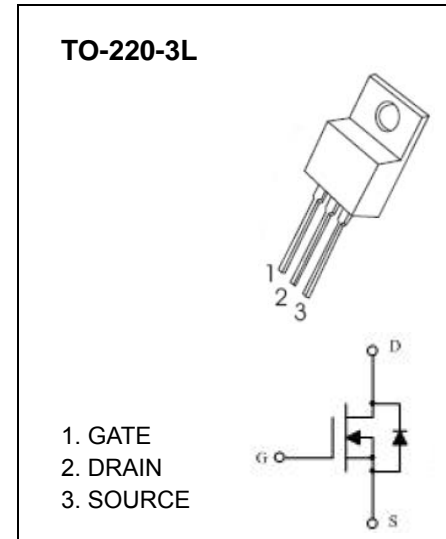
CJP04N65A N-Channel Power MOSFET

GENERAL DESCRIPTION

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

FEATURE

- High Current Rating
- Lower $R_{DS(on)}$
- Lower Capacitance
- 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}	650	V
Gate-Source Voltage	V_{GSS}	± 30	
Continuous Drain Current	I_D	4.0	A
Pulsed Drain Current	I_{DM}	16	
Single Pulsed Avalanche Energy (note1)	E_{AS}	280	mJ
Power Dissipation	P_D	2	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	$^{\circ}\text{C}/\text{W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 ~ +150	$^{\circ}\text{C}$
Maximum lead temperature for soldering purposes , 1/8" from case for 5 seconds	T_L	260	

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	650			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 (note2)	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 30V$			± 100	nA
On characteristics (note2)						
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2.0		4.0	V
Static drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 2.0A$			3.0	Ω
Dynamic characteristics (note 3)						
Input capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$			760	pF
Output capacitance	C_{oss}				180	
Reverse transfer capacitance	C_{rss}				20	
Switching characteristics (note 3)						
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)	$t_{d(on)}$	$V_{DD} = 300V, V_{GS} = 10V, R_G = 9.1\Omega, I_D = 4.0A$			20	ns
Turn-on rise time (note3)	t_r				10	
Turn-off delay time (note3)	$t_{d(off)}$				40	
Turn-off fall time (note3)	t_f				20	

Notes :

1. $L=30mH, I_L=4A, V_{DD}=100V, V_{GS}=10V, R_G=25\Omega, \text{Starting } T_J=25^{\circ}\text{C}.$
2. Pulse Test : Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. These parameters have no way to verify.