

T0-220-3L Plastic-Encapsulate MOSFETS

CJP71N90 N-Channel MOSFET

DESCRIPTION

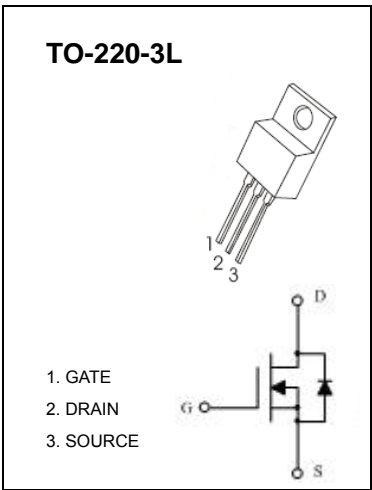
The CJP71N90 uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge .This device is suitable for use in a wide variety of applications.

FEATURES

- Lead free product is acquired
- Special process technology for high ESD capability
- High density cell design for ultra low $R_{DS(on)}$
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation

APPLICATION

- Power switching application
- Hard switching and high frequency circuits
- Uninterruptible power supply



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	71	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	90	A
Pulsed Drain Current (note 1)	I_{DM}	320	A
Single Pulsed Avalanche Energy (note5)	E_{AS}	580	mJ
Thermal Resistance from Junction to Ambient (note 2)	$R_{\theta JA}$	62.5	$^{\circ}\text{C/W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}\text{C}$

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

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
STATIC CHARACTERISTICS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	71			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = 71V, V_{GS} = 0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Gate threshold voltage (note 3)	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2		4	V
Drain-source on-resistance (note 3)	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 40A$			7.5	m Ω
Forward transconductance (note 3)	g_{FS}	$V_{DS} = 5V, I_D = 40A$		60		S
Diode forward voltage (note 3)	V_{SD}	$I_S = 20A, V_{GS} = 0V$			1.2	V
DYNAMIC CHARACTERISTICS (note 4)						
Input capacitance	C_{iss}	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		4871		pF
Output capacitance	C_{oss}			630.6		pF
Reverse transfer capacitance	C_{rss}			410.3		pF
Gate resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		0.63		Ω
SWITCHING CHARACTERISTICS (note 4)						
Turn-on delay time	$t_{d(on)}$	$V_{GS} = 10V, V_{DS} = 30V,$ $R_{GEN} = 10\Omega, I_D = 42A$		36.1		ns
Turn-on rise time	t_r			54.3		ns
Turn-off delay time	$t_{d(off)}$			85.2		ns
Turn-off fall time	t_f			37.3		ns
Total gate charge	Q_g	$V_{DS} = 48V, V_{GS} = 10V, I_D = 84A$		85.7		nC
Gate-source Charge	Q_{gs}			23.2		nC
Gate-drain Charge	Q_{gd}			31.2		nC
Body diode reverse recovery time (note 3)	t_{rr}	$I_F = 84A, di/dt = 100A/\mu s$		88.3		ns
Body diode reverse recovery charge (note 3)	Q_{rr}			65.9		nC

Notes :

1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , $t \leq 10s$.
3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to producing.
- 5 $L = 0.5mH, V_{DD} = 37.5V, V_{GS} = 10V, R_G = 25\Omega$, Starting $T_J = 25^{\circ}\text{C}$.