

T0-220-3L Plastic-Encapsulate MOSFETS

CJP71N90 N-Channel MOSFET

DESCRIPTION

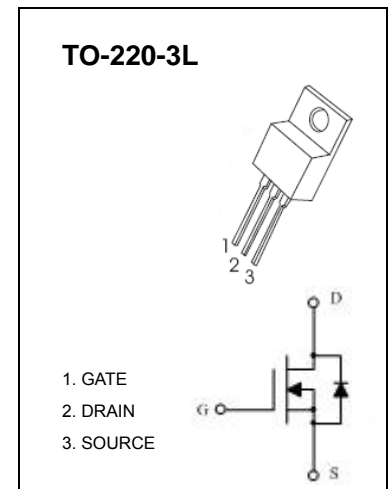
The CJP71N90 uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use in a wide variety of applications.

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 (note 5)	E_{AS}	580	mJ
Thermal Resistance from Junction to Ambient (note 2)	$R_{\theta JA}$	62.5	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^\circ\text{C}$

Electrical characteristics (T_a=25°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 =250μA	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} =±20V, V _{DS} = 0V			± 100	nA
Gate threshold voltage (note 3)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2		4	V
Drain-source on-resistance (note 3)	R _{DS(on)}	V _{GS} =10V, I _D =40A			7.5	mΩ
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} =10Ω, 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/μs		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≤10s.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle≤2%.
4. Guaranteed by design, not subject to producing.
5. L=0.5mH, V_{DD}=37.5V, V_{GS}=10V, R_G=25Ω, Starting T_J=25°C .