



**TO-251-3L Plastic-Encapsulate MOSFETS**

**CJD01N80 N-Channel Power MOSFET**

**GENERAL DESCRIPTION**

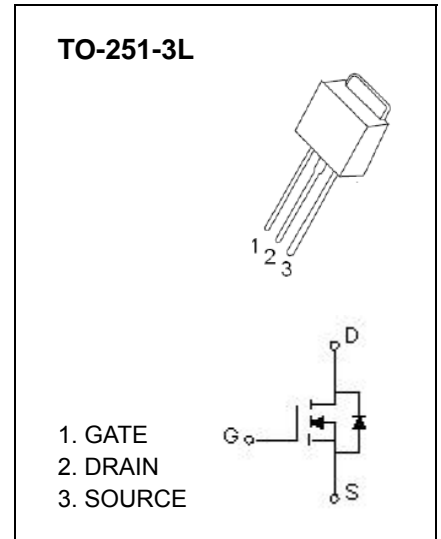
The CJD01N80 is an N-channel mode power MOSFET using advanced technology to provide customers with planar stripe. This technology specializes in allowing a minimum on-state resistance and superior switching performance. It also can withstand high energy pulse in the avalanche and commutation mode. The CJD01N80 is universally applied in high efficiency switch mode power supply.

**FEATURE**

- Excellent package for good heat dissipation
- High switching speed
- 100% avalanche tested

**APPLICATION**

- Power switching application
- DC/DC converters



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	800	V
Gate-Source Voltage	$V_{GS}$	$\pm 30$	
Continuous Drain Current	$I_D$	1	A
Pulsed Drain Current	$I_{DM}$	4	
Single Pulsed Avalanche Energy (note1)	$E_{AS}$	90	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	100	$^{\circ}\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-55 ~ +150	
Maximum Lead Temperature for Soldering Purposes , 1/8"from Case for 5 Seconds	$T_L$	260	

**Electrical characteristics (T<sub>a</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Off characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	800			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =800V, V <sub>GS</sub> =0V			10	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±30V			±100	nA
<b>On characteristics</b>						
Gate-threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	3		5	V
Static drain-source on-resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =0.5A			13.5	Ω
Forward transconductance (note2)	g <sub>fs</sub>	V <sub>DS</sub> =50V, I <sub>D</sub> =0.5A		0.75		S
<b>Dynamic characteristics (note 3)</b>						
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f =1MHz			195	pF
Output capacitance	C <sub>oss</sub>				26	
Reverse transfer capacitance	C <sub>rss</sub>				3.5	
<b>Switching characteristics (note 2,3)</b>						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> =400V, R <sub>G</sub> =25Ω, I <sub>D</sub> =1A			30	ns
Turn-on rise time	t <sub>r</sub>				60	
Turn-off delay time	t <sub>d(off)</sub>				40	
Turn-off fall time	t <sub>f</sub>				60	
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =640V, V <sub>GS</sub> =10V, I <sub>D</sub> =1A			7.2	nC
Gate-Source Charge	Q <sub>gs</sub>			1.1		nC
Gate-Drain Charge	Q <sub>gd</sub>			3.3		nC
<b>Drain-Source Diode Characteristics</b>						
Drain-source diode forward voltage	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> =1A			1.4	V
Continuous drain-source diode forward current	I <sub>S</sub>				1	A
Pulsed drain-source diode forward current	I <sub>SM</sub>				4	A

**Notes :**

1. I<sub>L</sub>=1A, V<sub>DD</sub>=50V, R<sub>G</sub>=25Ω, Starting T<sub>J</sub>=25°C
2. Pulse Test : Pulse width≤300μs, duty cycle ≤2%
3. Guaranteed by design, not subject to production

# Typical Characteristics

# CJD01N80

