

TO-251-3L Plastic-Encapsulate MOSFETS

CJD01N80 N-Channel Power MOSFET

GENERAL DESCRIPTION

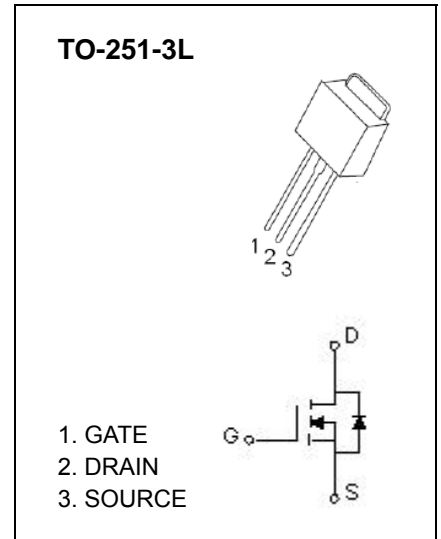
The CJD01N80 is an N-channel mode power MOSFET using advanced technology to provide customers with planar stripe. This technology specializes in allowing a minimum on-state resistance and superior switching performance. It also can withstand high energy pulse in the avalanche and commutation mode. The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

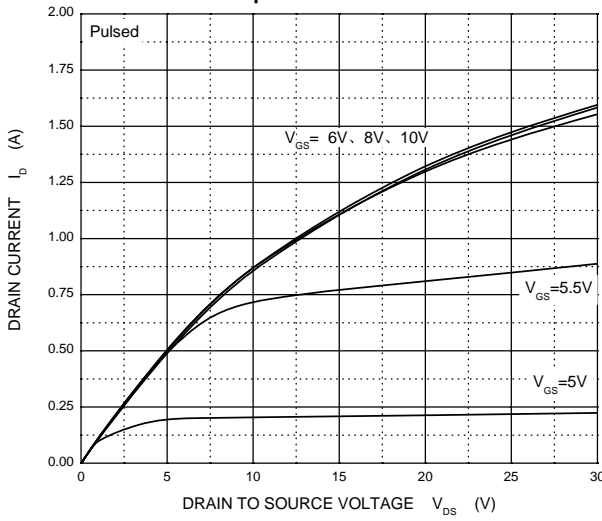
Electrical characteristics (T_a=25°C unless otherwise noted)

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

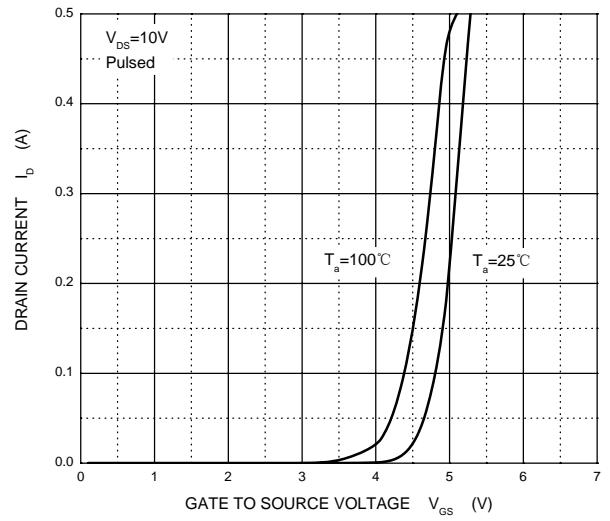
Notes :

- I_L = 1A, V_{DD} = 50V, R_G = 25Ω, Starting T_J = 25°C
- Pulse Test : Pulse width ≤ 300μs, duty cycle ≤ 2%
- Guaranteed by design, not subject to production

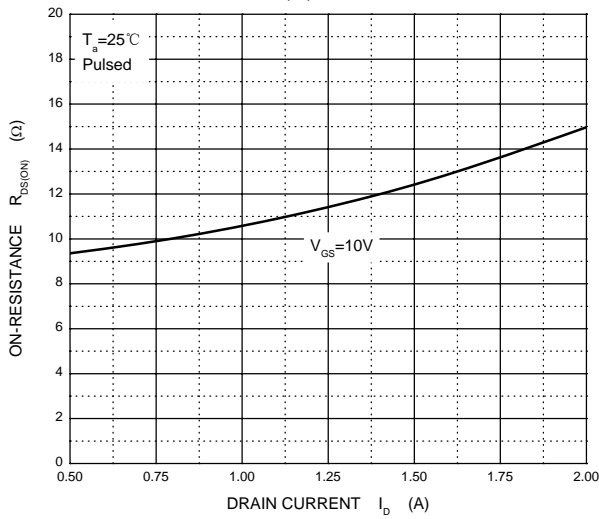
Output Characteristics



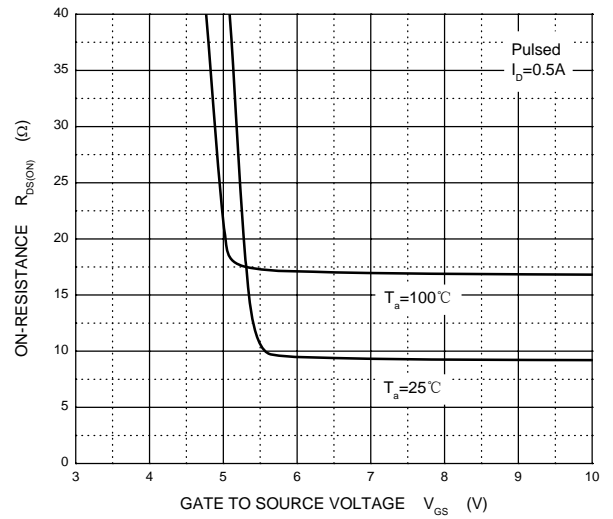
Transfer Characteristics



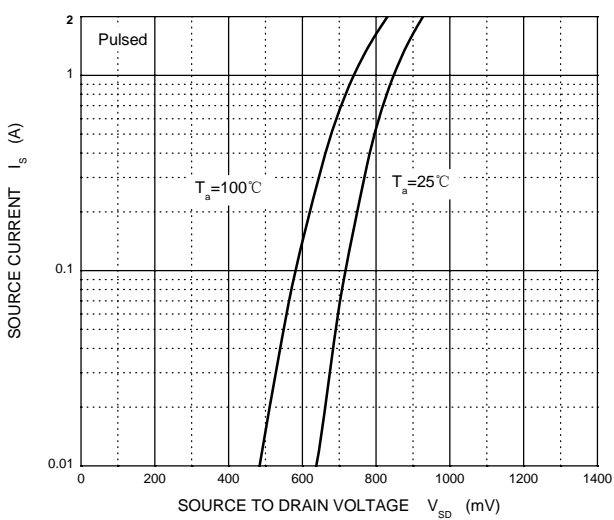
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage

