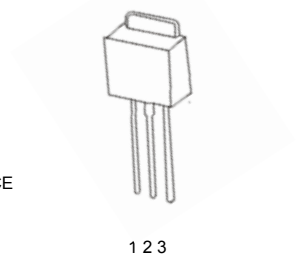
TO-251-3L Plastic-Encapsulate MOSFETS

CJD01N60 N-Channel Power MOSFET

TO-251-3L



1. GATE
2. DRAIN
3. SOURCE

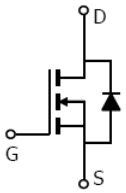
1 2 3

General Description

The high voltage MOSFET uses an advanced termination scheme to provide enhanced voltage-blocking capability without degrading performance over time. In addition , this advanced MOSFET is designed to withstand high energy in avalanche and commutation modes . The new energy efficient design also offers a drain-to-source diode with a fast recovery time. Designed for high voltage, high speed switching applications in power suppliers, converters and PWM motor controls , these devices are particularly well suited for bridge circuits where diode speed and commutating safe operating areas are critical and offer additional and safety margin against unexpected voltage transients.

FEATURES

- Robust High Voltage Termination
- Avalanche Energy Specified
- Source-to-Drain Diode Recovery Time Comparable to a Discrete Fast Recovery Diode
- Diode is Characterized for Use in Bridge Circuits
- I_{DSS} and $V_{DS(on)}$ Specified at Elevated Temperature



Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	±20	
Single Pulse Avalanche Energy (note 1)	E_{AS}	20	mJ
Continuous Drain Current	I_D	1	A
Power Dissipation	P_D	1	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	125	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-50 ~+150	

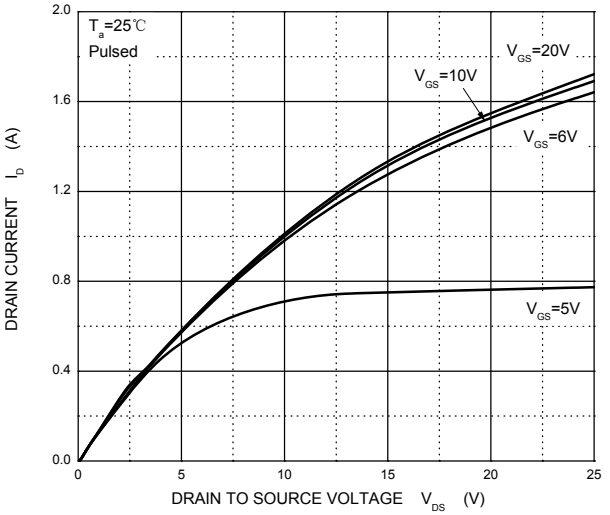
Electrical characteristics (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Drain-source breakdown voltage	$V_{(BR)\ DSS}$	V_{GS} = 0V, I_D =250μA	600			V
Gate-threshold voltage (note 2)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2.0		4.0	
Gate-body leakage current (note 2)	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±100	nA
Zero gate voltage drain current	I_{DSS}	V_{DS} =600V, V_{GS} =0V			100	μA
Drain-source on-state resistance (note 2)	$R_{DS(on)}$	V_{GS} =10V, I_D =0.6A			10	Ω
Forward transconductance (note 2)	g_{FS}	V_{DS} =50V, I_D =0.5A	0.5			S
Input capacitance (note 3)	C_{iss}	V_{DS} =25V,V_{GS} =0V, f =1MHz		210		pF
Output capacitance (note 3)	C_{oss}			28		
Reverse transfer capacitance (note 3)	C_{rss}			4.2		
Turn-on delay time (note 3)	$t_{d(on)}$	V_{DD}=300V,I_D=1A, V_{GS}=10V,R_G=18Ω		8		nS
Rise time(note 3)	t_r			21		
Turn-off delay time (note 3)	$t_{d(off)}$			18		
Fall time (note 3)	t_f			24		
Forward on voltage(note2)	V_{SD}	V_{GS} =0V, I_S=1A			1.5	V

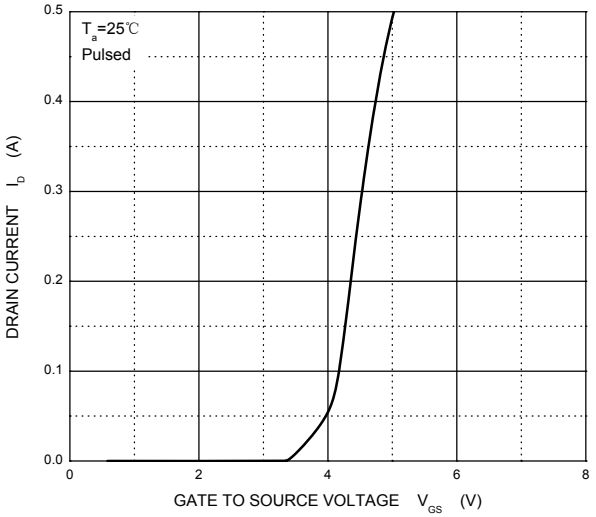
Notes:

1. V_{DD}=100V,starting T_J=25℃，L=10mH,R_G=25Ω，I_{AS}=2A,V_{GS}=10V.
2. Pulse test: Pulse width≤300μs, duty cycle≤2%.
3. These parameters have no way to verify.

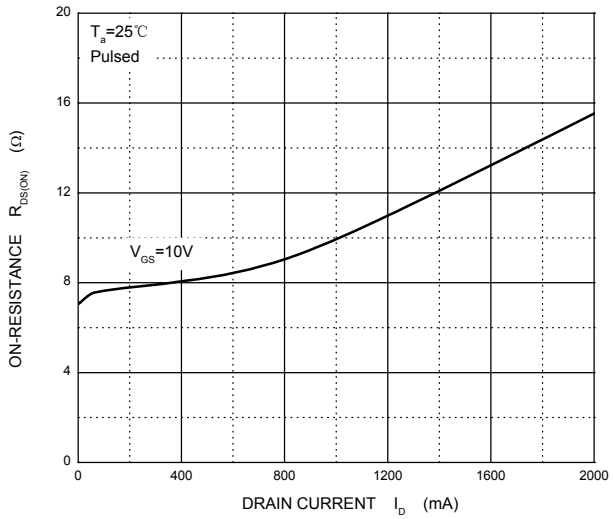
Output Characteristics



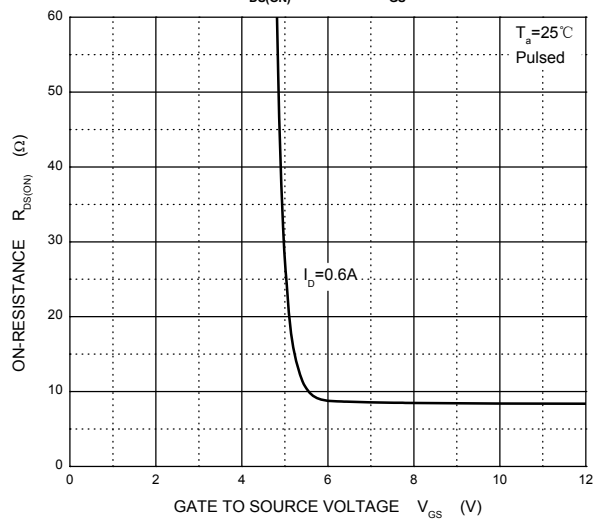
Transfer Characteristics



$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}