# TO-251S Plastic-Encapsulate MOSFETS

CJD05N60B   N-Channel Power MOSFET

GENERAL DESCRIPTION

This advanced high voltage MOSFET is designed to stand high energy in the avalanche mode and switch efficiently. This new high energy device also offers a drain-to-source diode fast recovery time. Desighed for high voltage, high speed switching applications such as power supplies, converters, power motor controls and bridge circuits.

FEATURE

- High Current Rating
- Lower $R_{DS(on)}$
- Lower Capacitance
- Lower Total Gate Charge
- Tighter V_{SD} Specifications
- Avalanche Energy Specified

TO-251S

1. GATE
2. DRAIN
3. SOURCE
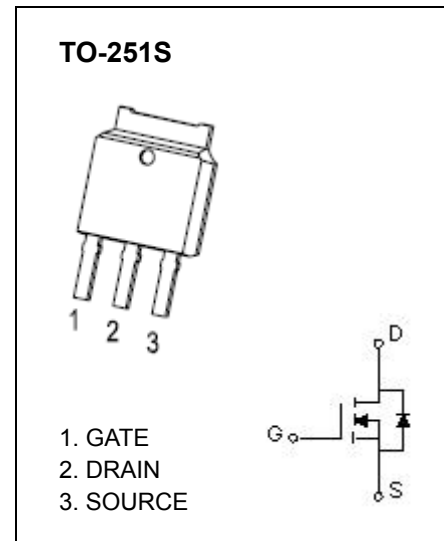
Maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current	I_D	5	A
Pulsed Drain Current	I_{DM}	20	A
Single Pulsed Avalanche Energy (note1)	E_{AS}	250	mJ
Power Dissipation	P_D	1.25	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	100	℃/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 ~+150	℃
Maximum lead temperure for soldering purposes , Duration 5 seconds	T_L	260	℃

Electrical characteristics (T$_a$=25℃ 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	600			V
Drain-source diode forward voltage(note2)	V$_{SD}$	V$_{GS}$ = 0V, I$_S$ =4.5A			1.4	
Zero gate voltage drain current	I$_{DSS}$	V$_{DS}$ =600V, V$_{GS}$ =0V			1	μA
Gate-body leakage curren (note2)	I$_{GSS}$	V$_{DS}$ =0V, V$_{GS}$ =±30V			±100	nA
On characteristics (note2)						
Gate-threshold voltage	V$_{GS(th)}$	V$_{DS}$ =V$_{GS}$, I$_D$ =250μA	2.0		4.0	V
Static drain-source on-resistance	R$_{DS(on)}$	V$_{GS}$ =10V, I$_D$ =2.25A			2.5	Ω
Dynamic characteristics (note 3)						
Input capacitance	C$_{iss}$				670	pF
Output capacitance	C$_{oss}$	V$_{DS}$ =25V,V$_{GS}$ =0V,f =1MHz			72	
Reverse transfer capacitance	C$_{rss}$				8.5	
Switching characteristics (note 3)						
Turn-on delay time	t$_{d(on)}$				30	ns
Turn-on rise time	t$_r$	V$_{DD}$=300V, V$_{GS}$=10V,			90	
Turn-off delay time	t$_{d(off)}$	R$_G$=25Ω, I$_D$ =4.5A			85	
Turn-off fall time	t$_f$				100	

Notes :

1. L=16mH, I$_L$=5A, V$_{DD}$=50V„R$_G$=25Ω,Starting T$_J$=25℃.

2. Pulse Test : Pulse width≤300μs, duty cycle ≤2%.

3. These parameters have no way to verify.