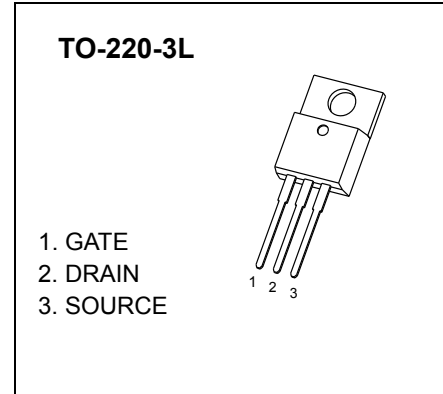




## TO-220-3L Plastic-Encapsulate MOSFETS

### CJP02N80 N-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
800V	6.3Ω@10V	2.4A



#### GENERAL DESCRIPTION

The CJP02N80 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 CJP02N80 is universally applied in high efficiency switch mode power supply.

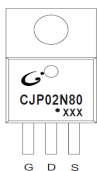
#### FEATURE

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

#### APPLICATION

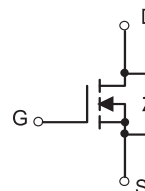
- Power switching application
- DC/DC converters

#### MARKING



CJP02N80= Device code  
 Solid dot = Green molding compound device,  
 if none, the normal device  
 XXX=Date Code

#### EQUIVALENT CIRCUIT



#### 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	$I_D$	2.4	A
Pulsed Drain Current	$I_{DM}$	9.6	
Single Pulsed Avalanche Energy (note1)	$E_{AS}$	180	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$
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	

## MOSFET ELECTRICAL CHARACTERISTICS

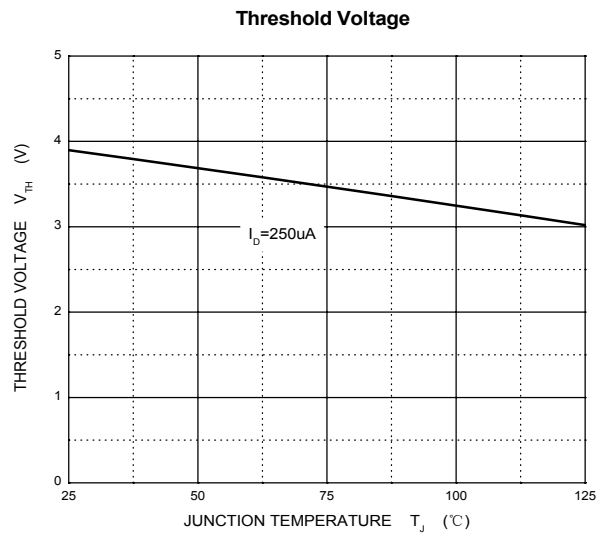
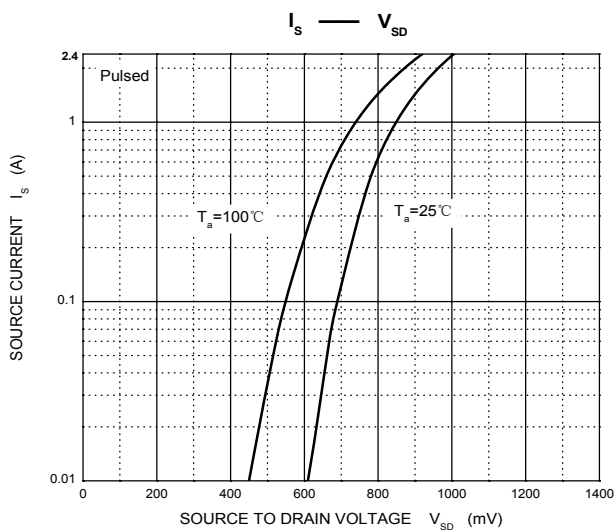
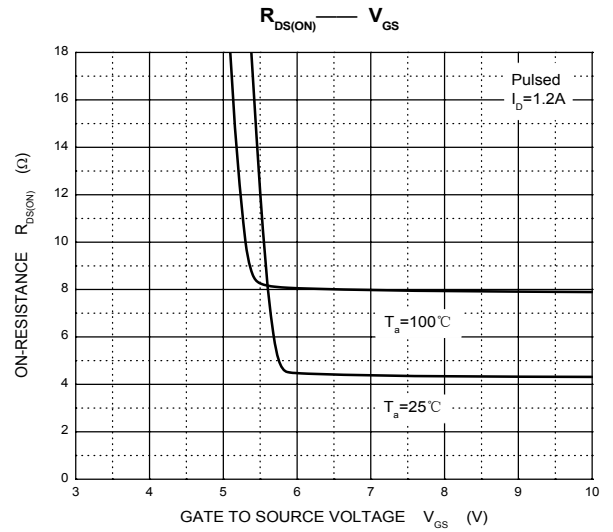
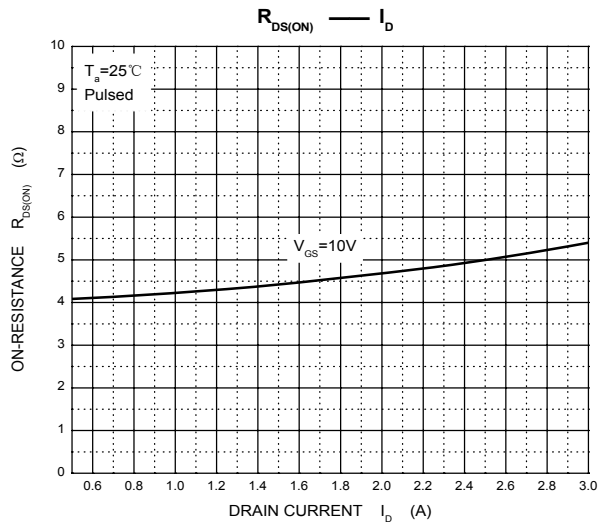
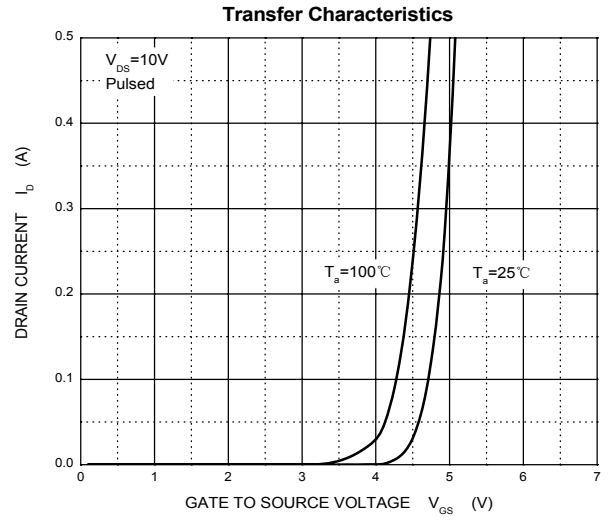
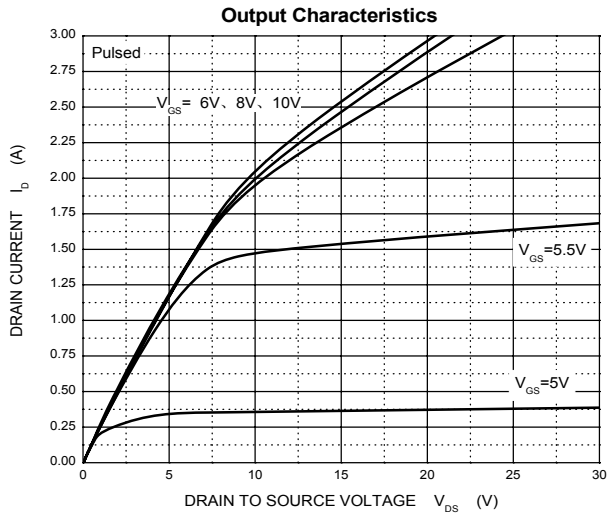
$T_a=25^\circ\text{C}$  unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Off characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	800			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 800V, V_{GS} = 0V$			10	$\mu A$
Gate-body leakage current	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 30V$			$\pm 100$	nA
<b>On characteristics</b>						
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	3	4	5	V
Static drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 1.2A$		4.5	6.3	$\Omega$
Forward transconductance (note2)	$g_{fs}$	$V_{DS} = 50V, I_D = 1.2A$	1.5	2.65		S
<b>Dynamic characteristics (note 3)</b>						
Input capacitance	$C_{iss}$	$V_{DS} = 25V, V_{GS} = 0V, f = 1MHz$			550	pF
Output capacitance	$C_{oss}$				60	
Reverse transfer capacitance	$C_{riss}$				7	
<b>Switching characteristics (note 2,3)</b>						
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 400V, R_G = 25\Omega, I_D = 2.4A$			35	ns
Turn-on rise time	$t_r$				70	
Turn-off delay time	$t_{d(off)}$				60	
Turn-off fall time	$t_f$				65	
Total Gate Charge	$Q_g$	$V_{DS} = 640V, V_{GS} = 10V, I_D = 2.4A$			15	nC
Gate-Source Charge	$Q_{gs}$			2.6		nC
Gate-Drain Charge	$Q_{gd}$			6		nC
<b>Drain-Source Diode Characteristics</b>						
Drain-source diode forward voltage	$V_{SD}$	$V_{GS} = 0V, I_S = 2.4A$			1.4	V
Continuous drain-source diode forward current	$I_S$				2.4	A
Pulsed drain-source diode forward current	$I_{SM}$				9.6	A

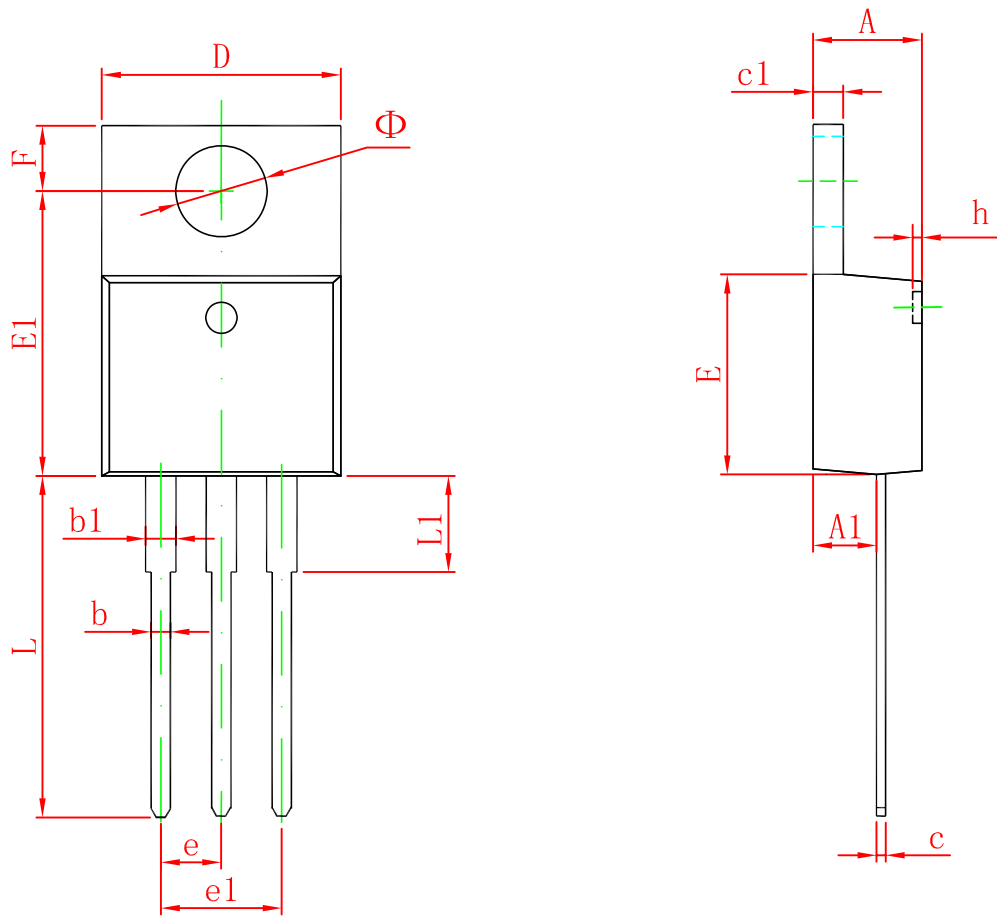
**Notes :**

- $I_L = 2.4A, V_{DD} = 50V, R_G = 25\Omega, \text{Starting } T_J = 25^\circ\text{C}.$
- Pulse Test : Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
- Guaranteed by design, not subject to production

# Typical Characteristics



# TO-220-3L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.470	4.670	0.176	0.184
A1	2.520	2.820	0.099	0.111
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
E1	12.060	12.460	0.475	0.491
e	2.540 TYP		0.100 TYP	
e1	4.980	5.180	0.196	0.204
F	2.590	2.890	0.102	0.114
h	0.000	0.300	0.000	0.012
L	13.400	13.800	0.528	0.543
L1	3.560	3.960	0.140	0.156
$\Phi$	3.735	3.935	0.147	0.155