

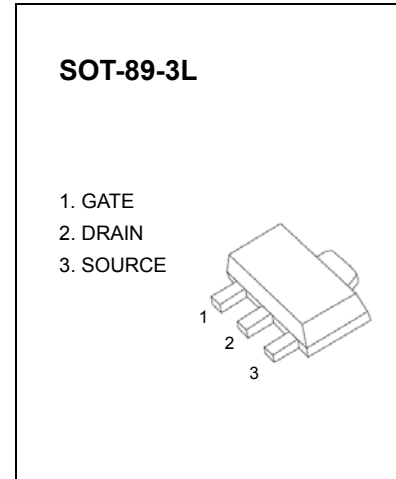
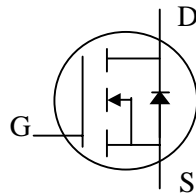


**SOT-89-3L Plastic-Encapsulate MOSFETS**

**CJA9452** N-Channel 20-V(D-S) MOSFET

**Description**

The Advanced Power MOSFETs provide the designer with the best combination of fast switching, ruggedized device design, ultra low on- resistance and cost-effectiveness.



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

Parameter	Symbol	Value	Units
Drain-Source Voltage	$V_{DS}$	20	V
Continuous Gate-Source Voltage	$V_{GS}$	$\pm 12$	
Continuous Drain Current	$I_D$	4	A
Power Dissipation	$P_D$	0.5	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	250	$^{\circ}\text{C}/\text{W}$
Operating Temperature	$T_j$	150	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$	-55 ~ +150	

**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	20			V
Gate-body leakage	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±12V			±100	nA
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V			1.0	μA
<b>On characteristics</b>						
Gate-threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =0.25mA	0.70		1.50	V
Static drain-source on-resistance (note 1)	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =4A			0.038	Ω
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =4A			0.05	
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =3A			0.08	
Forward transconductance (note 1)	g <sub>fs</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =3A	3			S
<b>Dynamic characteristics (note 2)</b>						
Input capacitance	C <sub>ISS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V, f=1MHz			570	pF
Output capacitance	C <sub>OSS</sub>			80		
Reverse transfer capacitance	C <sub>RSS</sub>			65		
<b>Switching characteristics</b>						
Turn-on delay time (note 1,2)	t <sub>d(on)</sub>	V <sub>GS</sub> =5V, V <sub>DS</sub> =10V, I <sub>D</sub> =1A, R <sub>GEN</sub> =3.3Ω, R <sub>D</sub> =10Ω		8		ns
Rise time (note 2)	t <sub>r</sub>			9		
Turn-off delay time (note 2)	t <sub>d(off)</sub>			13		
Fall time (note 2)	t <sub>f</sub>			3		
<b>Drain-source body diode characteristics</b>						
Body diode forward voltage (note 1)	V <sub>SD</sub>	I <sub>S</sub> =1A, V <sub>GS</sub> = 0V			1.3	V

**No tes:**

1. Pulse Test ; Pulse Width ≤300μs, Duty Cycle ≤2%.
2. These parameters have no way to verify.

# Typical Characteristics

# CJA9452

