

## SOT-23 Plastic-Encapsulate MOSFETS

### CJ3402 N-Channel MOSFET

#### DESCRIPTION

The CJ3402 uses advanced trench technology to provide excellent  $R_{DS(ON)}$ , low gate charge and operation with gate voltage as low as 2.5V.

This device is suitable for use as a load switch or in PWM application.

#### FEATURES

- Lead free product is acquired
- Surface mount package

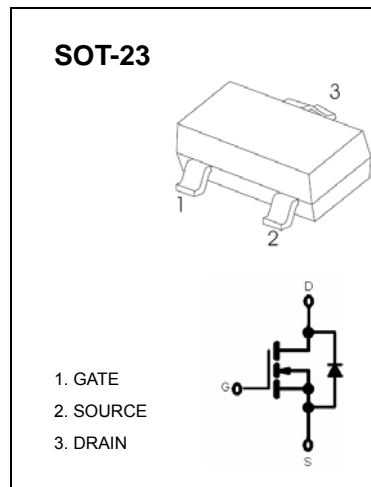
#### APPLICATION

- Load Switch and in PWM applications

#### MARKING: R2

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Continuous Drain Current	$I_D$	4	A
Pulsed Drain Current (note 1)	$I_{DM}$	15	A
Power Dissipation	$P_D$	0.35	W
Thermal Resistance from Junction to Ambient (note 2)	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~+150	$^\circ\text{C}$



**Electrical characteristics (T<sub>a</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>STATIC CHARACTERISTICS</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	30			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =24V, V <sub>GS</sub> = 0V			1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±12V, V <sub>DS</sub> = 0V			100	nA
Gate threshold voltage (note 3)	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.6	1	1.4	V
Drain-source on-resistance (note 3)	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =4A		45	55	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =3A		55	70	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =2A		83	110	mΩ
Forward transconductance (note 3)	g <sub>FS</sub>	V <sub>DS</sub> =15V, I <sub>D</sub> =4A		8		S
Diode forward voltage (note 3)	V <sub>SD</sub>	I <sub>S</sub> =1A, V <sub>GS</sub> = 0V		0.8	1	V
<b>DYNAMIC CHARACTERISTICS (note 4)</b>						
Input capacitance	C <sub>iSS</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f =1MHz		390		pF
Output capacitance	C <sub>oSS</sub>			54.5		pF
Reverse transfer capacitance	C <sub>rSS</sub>			41		Pf
Gate resistance	R <sub>g</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =0V, f =1MHz		3		Ω
<b>SWITCHING CHARACTERISTICS (note 4)</b>						
Turn-on delay time	t <sub>d(on)</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =15V, R <sub>L</sub> =3.75Ω, R <sub>GEN</sub> =6Ω		3.3		ns
Turn-on rise time	t <sub>r</sub>			1		ns
Turn-off delay time	t <sub>d(off)</sub>			21.7		ns
Turn-off fall time	t <sub>f</sub>			2.1		ns
Total gate charge	Q <sub>g</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =4A		4.34		nC
Gate-source Charge	Q <sub>gs</sub>			0.6		nC
Gate-drain Charge	Q <sub>gd</sub>			1.38		nC
Body diode reverse recovery time	t <sub>r</sub>	I <sub>F</sub> =4A, dI/dt=100A/μs		1.2		ns
Body diode reverse recovery charge	Q <sub>rr</sub>			6.3		nC

**Notes :**

1. Repetitive rating : Pulse width limited by junction temperature.
2. Surface mounted on FR4 board , t<sub>s</sub>≤10s.
3. Pulse Test : Pulse Width≤80μs, Duty Cycle≤0.5%.
4. Guaranteed by design, not subject to producing.