



## SOT-23 Plastic-Encapsulate MOSFETS

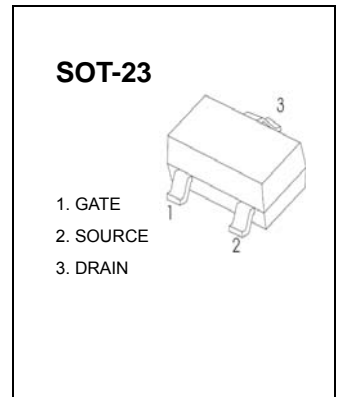
**CJ3415** P-Channel 20-V(D-S) MOSFET

### FEATURE

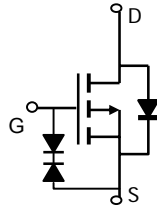
Excellent  $R_{DS(ON)}$ , low gate charge, low gate voltages

### APPLICATIONS

Load switch and in PWM applicatopns



**MARKING: R15**



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-20	V
Gate-Source Voltage	$V_{GS}$	$\pm 8$	
Continuous Drain Current ( $t \leq 10\text{s}$ )	$I_D$	-4.0	A
Maximum Power Dissipation ( $t \leq 10\text{s}$ )	$P_D$	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	$^\circ\text{C/W}$
Operating 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	Units
<b>Static Parameters</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-20			V
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-0.3		-1	
Gate-body leakage current	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±8V			±10	μA
		V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±4.5V			±1	
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = -16V, V <sub>GS</sub> = 0V			-1	
Drain-source on-state resistance(note1)	R <sub>DSON</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -4A			0.050	Ω
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -4A			0.060	
		V <sub>GS</sub> = -1.8V, I <sub>D</sub> = -2A			0.073	
Forward transconductance(note2)	g <sub>FS</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -4A	8			S
Body diode voltage(note2)	V <sub>SD</sub>	I <sub>S</sub> = -1A, V <sub>GS</sub> = 0V			-1	V
<b>Dynamic Parameters (note3)</b>						
Input capacitance	C <sub>ISS</sub>	V <sub>DS</sub> = -10V, V <sub>GS</sub> = 0V, f = 1MHz		1450		pF
Output capacitance	C <sub>OSS</sub>			205		
Reverse transfer capacitance	C <sub>RSS</sub>			160		
Gate resistance	R <sub>g</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz		6.5		Ω
<b>Switching Parameters</b>						
Total gate charge	Q <sub>g</sub>	V <sub>DS</sub> = -10V, V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -4A		17.2		nC
Gate-Source charge	Q <sub>gs</sub>			1.3		
Gate-drain charge	Q <sub>gd</sub>			4.5		
Turn-on delay time (note3)	t <sub>d(on)</sub>	V <sub>DS</sub> = -10V, V <sub>GS</sub> = -4.5V R <sub>GEN</sub> = 3Ω, R <sub>L</sub> = 2.5Ω,		9.5		ns
Turn-on rise time(note3)	t <sub>r</sub>			17		
Turn-off delay time(note3)	t <sub>d(off)</sub>			94		
Turn-off fall time(note3)	t <sub>f</sub>			35		

**Notes:**

1. Repetitive rating, pulse width limited by junction temperature.
2. Pulse Test : Pulse width ≤ 300μs, duty cycle ≤ 2%.
3. These parameters have no way to verify.

# Typical Characteristics

# CJ3415

