

### General Description

These miniature surface mount MOSFETs utilize High Cell Density process. Low  $r_{DS(on)}$  assures minimal power loss and conserves energy, making this device ideal for use in power management circuitry. Typical applications are power switch, power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

### Features

- $R_{DS(ON)} < 35m\Omega$  @  $V_{GS}=4.5V$
- $R_{DS(ON)} < 45m\Omega$  @  $V_{GS}=2.5V$
- SOT-23-3L Package

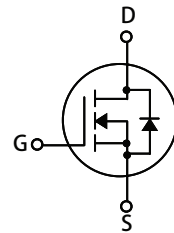
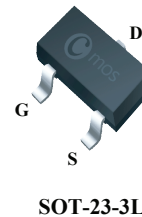
### Product Summary

BVDSS	RDSON	ID
20V	35mΩ	5A

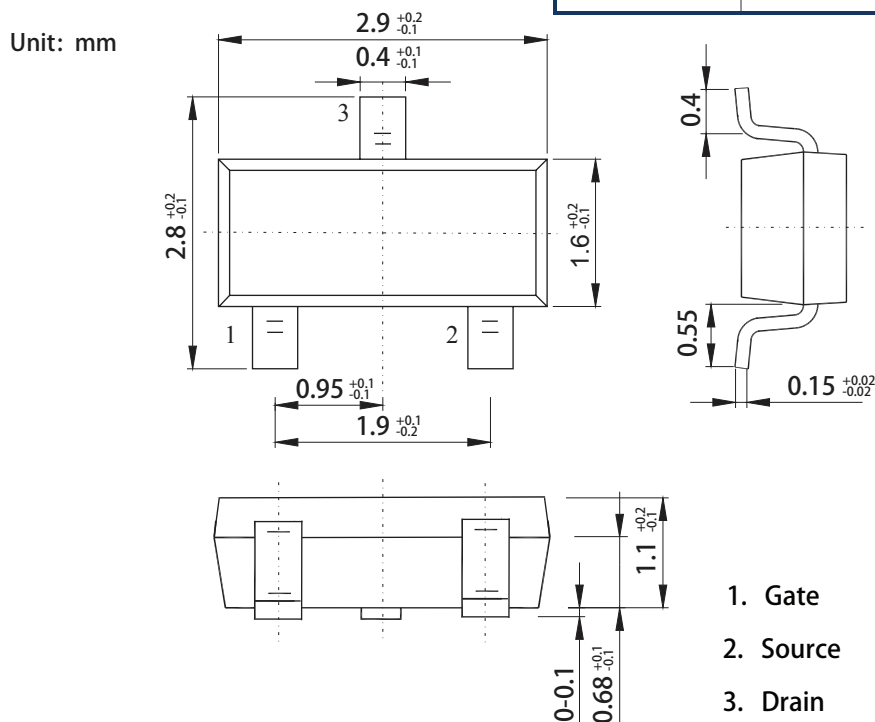
### Applications

- DC-DC converters
- Load Switch
- Power Management in Notebook Computer
- Portable Equipment and Battery Powered Systems

### SOT-23-3L Pin Configuration



Type	Package	Marking
CMN2302M	SOT-23-3L	A2



## N-Channel Enhancement Mode Field Effect Transistor

## Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
$V_{DS}$	Drain-Source Voltage	20	V
$V_{GS}$	Gate-Source Voltage	$\pm 10$	V
$I_D@T_a=25^\circ\text{C}$	Continuous Drain Current	5	A
$I_{DM}$	Pulsed Drain Current	15	A
$P_D@T_a=25^\circ\text{C}$	Total Power Dissipation	1	W
$T_{STG}$	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
$T_J$	Operating Junction Temperature Range	150	$^\circ\text{C}$

## Thermal Data

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	100	$^\circ\text{C}/\text{W}$

Electrical Characteristics ( $T_a=25^\circ\text{C}$  , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0\text{V}$ , $I_D=250\mu\text{A}$	20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=4.5\text{V}$ , $I_D=4.5\text{A}$	---	---	35	m $\Omega$
		$V_{GS}=2.5\text{V}$ , $I_D=3.5\text{A}$	---	---	45	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$ , $I_D=250\mu\text{A}$	0.5	---	1.5	V
$I_{DSS}$	Drain-Source Leakage Current	$V_{DS}=16\text{V}$ , $V_{GS}=0\text{V}$	---	---	1	$\mu\text{A}$
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=\pm 10\text{V}$ , $V_{DS}=0\text{V}$	---	---	$\pm 100$	nA
$Q_g$	Total Gate Charge	$I_D=1\text{A}$ $V_{DS}=10\text{V}$ $V_{GS}=4.5\text{V}$	---	8.8	---	nC
$Q_{gs}$	Gate-Source Charge		---	1.2	---	
$Q_{gd}$	Gate-Drain Charge		---	2.5	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=10\text{V}$ $I_D=3.5\text{A}$ $R_{GEN}=10\Omega$	---	12	---	ns
$T_r$	Rise Time		---	18	---	
$T_{d(off)}$	Turn-Off Delay Time		---	45	---	
$T_f$	Fall Time		---	30	---	
$C_{iss}$	Input Capacitance	$V_{DS}=10\text{V}$ , $V_{GS}=0\text{V}$ , $f=1\text{MHz}$	---	600	---	pF
$C_{oss}$	Output Capacitance		---	120	---	
$C_{rss}$	Reverse Transfer Capacitance		---	80	---	

## Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$V_{SD}$	Diode Forward Voltage	$V_{GS}=0\text{V}$ , $I_S=0.75\text{A}$	---	---	1.5	V

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