

General Description

The 031N03L uses advanced technology and design to provide excellent RDS(ON) .

This device is ideal for boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

Features

- Low On-Resistance
- Fast Switching
- RoHS Compliant

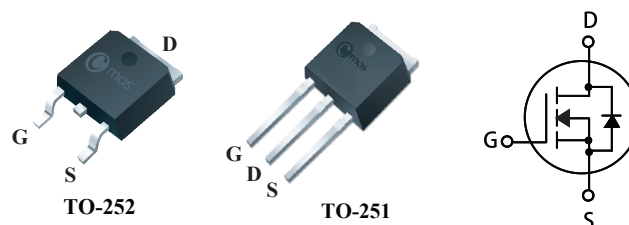
Product Summary

BVDSS	RDSON	ID
30V	3.1mΩ	120A

Applications

- Inverters
- Power Supplies

TO-252/251 Pin Configuration



Type	Package	Marking
CMD031N03L	TO-252	CMD031N03L
CMU031N03L	TO-251	CMU031N03L

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	120	A
$I_D@T_C=100^{\circ}C$		84	A
I_{DM}	Pulsed Drain Current	480	A
E_{AS}	Drain-Source Avalanche Energy ¹	176	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	100	W
T_{STG}	Storage Temperature Range	-55 to 175	°C
T_J	Operating Junction Temperature Range	-55 to 175	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient(minimal footprint)	---	75	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.6	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=30A$	---	2.7	3.1	$m\Omega$
		$V_{GS}=4.5V$, $I_D=25A$	---	3.5	4.4	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	0.8	---	2	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=30V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=30A$	---	40	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1MHz$	---	3.3	---	Ω
Q_g	Total Gate Charge	$I_D=30A$	---	25	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=15V$	---	12	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=0$ to $4.5V$	---	6	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=15V$	---	10	---	ns
T_r	Rise Time	$I_D=30A$	---	6	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_{GEN}=1.6\Omega$	---	35	---	
T_f	Fall Time	$V_{GS}=10V$	---	5	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1MHz$	---	2500	---	pF
C_{oss}	Output Capacitance		---	710	---	
C_{rss}	Reverse Transfer Capacitance		---	80	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	120	A
I_{SM}	Pulsed Source Current		---	---	480	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=30A$	---	0.84	1.2	V

Notes:

1.The EAS data shows Max. rating .The test condition is $V_{DS}=25V$, $V_{GS}=10V$, $L=0.5mH$, $I_{AS}=26.6A$.

This product has been designed and qualified for the consumer market.

Cmos assumes no liability for customers' product design or applications.

Cmos reserves the right to improve product design ,functions and reliability without notice.

Typical Characteristics

