

General Description

The 40N10L uses advanced trench 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

- N-channel - Enhancement mode
- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	40	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	32	A
I_{DM}	Pulsed Drain Current	120	A
EAS	Single Pulse Avalanche Energy	240	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	135	W
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 175	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient (Steady-State)	---	50	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction -Case (Steady-State)	---	1.1	$^\circ\text{C}/\text{W}$

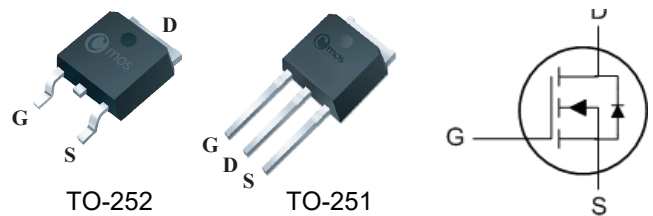
Product Summary

BVDSS	RDSON	ID
100V	38m Ω	40A

Applications

- LED controller
- Power Supplies
- DC-DC Converters

TO-252/251 Pin Configuration



Type	Package	Marking
CMD40N10L	TO-252	CMD40N10L
CMU40N10L	TO-251	CMU40N10L

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	100	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=20A$	---	---	38	$m\Omega$
		$V_{GS}=4.5V$, $I_D=10A$	---	---	42	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1	---	2.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=80V$, $V_{GS}=0V$, $T_J=25^{\circ}\text{C}$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=15A$	---	18	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3	---	Ω
Q_g	Total Gate Charge	$V_{DS}=50V$, $I_D=40A$ $V_{GS}=10V$	---	45	---	nC
Q_{gs}	Gate-Source Charge		---	8.5	---	
Q_{gd}	Gate-Drain Charge		---	15	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=50V$, $V_{GEN}=10V$, $I_D \approx 40A$ $R_G=1\Omega$, $R_L=1.25\Omega$	---	11	---	ns
T_r	Rise Time		---	10	---	
$T_{d(off)}$	Turn-Off Delay Time		---	27	---	
T_f	Fall Time		---	5	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	6000	---	pF
C_{oss}	Output Capacitance		---	310	---	
C_{rss}	Reverse Transfer Capacitance		---	125	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	40	A
I_{SM}	Pulsed Source Current		---	---	120	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=15A$, $T_J=25^{\circ}\text{C}$	---	---	1.2	V
t_{rr}	Reverse Recovery Time	$I_F=20A$ $di/dt=100 A/\mu s$	---	30	---	ns
Q_{rr}	Reverse Recovery Charge		---	40	---	nC

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