

### General Description

The 045N15 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	150	V
$V_{GS}$	Gate-Source Voltage	$\pm 30$	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	40	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	32	A
$I_{DM}$	Pulsed Drain Current	120	A
EAS	Single Pulse Avalanche Energy	340	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	140	W
$T_{STG}$	Storage Temperature Range	-55 to 175	$^\circ C$
$T_J$	Operating Junction Temperature Range	-55 to 175	$^\circ C$

### Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	50	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	1.07	$^\circ C/W$

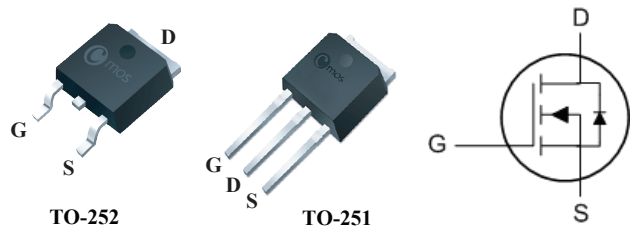
### Product Summary

BVDSS	RDSON	ID
150V	37m $\Omega$	40A

### Applications

- LED controller
- Power Supplies
- DC-DC Converters

### TO252 / TO251 Pin Configuration



Type	Package	Marking
CMD045N15	TO-252	CMD045N15
CMU045N15	TO-251	CMU045N15

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	150	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=20A$	---	---	37	m $\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	2	---	4	V
$I_{DSS}$	Drain-Source Leakage Current	$V_{DS}=150V, V_{GS}=0V, T_J=25^\circ\text{C}$	---	---	1	$\mu A$
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=\pm 30V, V_{DS}=0V$	---	---	$\pm 100$	nA
gfs	Forward Transconductance	$V_{DS}=10V, I_D=20A$	---	18	---	S
$R_g$	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$	---	2.0	---	$\Omega$
$Q_g$	Total Gate Charge	$V_{DS}=75V, V_{GS}=4.5V, I_D=18A$	---	64	---	nC
$Q_{gs}$	Gate-Source Charge		---	10	---	
$Q_{gd}$	Gate-Drain Charge		---	27	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=30V, R_L=15\Omega$ $I_D=2A, R_G=2.5\Omega$ $V_{GS}=10V$	---	15	---	ns
$T_r$	Rise Time		---	13	---	
$T_{d(off)}$	Turn-Off Delay Time		---	46	---	
$T_f$	Fall Time		---	12	---	
$C_{iss}$	Input Capacitance	$V_{DS}=30V, V_{GS}=0V, f=1\text{MHz}$	---	2500	---	pF
$C_{oss}$	Output Capacitance		---	130	---	
$C_{rss}$	Reverse Transfer Capacitance		---	112	---	

### 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	$V_{GS}=0V, I_S=20A, T_J=25^\circ\text{C}$	---	---	1.2	V

Note :

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.