

### General Description

The CMSA015N04 uses advanced technology to provide excellent RDS (ON) . This device is suitable to be used as the low side FET general purpose.

### Features

- RDS(ON)<1.5mΩ @ VGS=10V
- 100% avalanche tested
- RoHS and Halogen-Free Compliant
- High Current Capability

### Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V <sub>DS</sub>	Drain-Source Voltage	40	V
V <sub>GS</sub>	Gate-Source Voltage	±16	V
I <sub>D</sub> @T <sub>C</sub> =25°C	Continuous Drain Current	170	A
I <sub>D</sub> @T <sub>C</sub> =100°C	Continuous Drain Current	136	A
I <sub>DM</sub>	Pulsed Drain Current	450	A
EAS	Single Pulse Avalanche Energy	840	mJ
P <sub>D</sub> @T <sub>C</sub> =25°C	Total Power Dissipation	95	W
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	°C
T <sub>J</sub>	Operating Junction Temperature Range	-55 to 150	°C

### Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R <sub>θJA</sub>	Thermal Resistance, Junction-to-Ambient	---	62	°C/W
R <sub>θJC</sub>	Thermal Resistance Junction -Case	---	1.31	°C/W

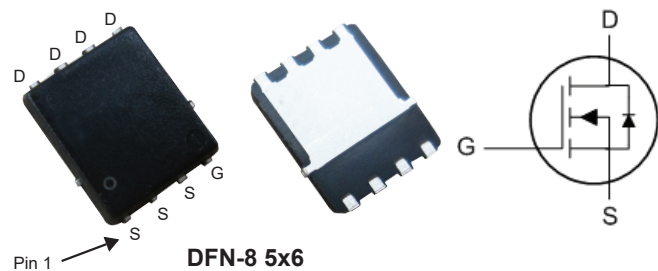
### Product Summary

BVDSS	RDSON	ID
40V	1.5mΩ	170A

### Applications

- DC/DC Converters in Computing, Servers, and POL
- Isolated DC/DC Converters in Telecom and Industrial

### DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA015N04	DFN-8 5*6	CMSA015N04

N-Channel Enhancement Mode Field Effect Transistor

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	40	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=60A$	---	---	1.5	m $\Omega$
		$V_{GS}=4.5V, I_D=50A$	---	---	2.2	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	1	---	3	V
$I_{DSS}$	Drain-Source Leakage Current	$V_{DS}=32V, V_{GS}=0V$	---	---	1	$\mu A$
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=\pm 16V, V_{DS}=0V$	---	---	$\pm 100$	nA
gfs	Forward Transconductance	$V_{DS}=10V, I_D=27A$	---	36	---	S
$R_g$	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$	---	2.5	---	$\Omega$
$Q_g$	Total Gate Charge	$V_{DS}=20V, I_D=85A$ $V_{GS}=10V$	---	126	---	nC
$Q_{gs}$	Gate-Source Charge		---	19	---	
$Q_{gd}$	Gate-Drain Charge		---	14	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=20V, V_{GS}=10V, I_D=85A$ $R_{GEN}=1.6\Omega$	---	15	---	ns
$T_r$	Rise Time		---	8	---	
$T_{d(off)}$	Turn-Off Delay Time		---	57	---	
$T_f$	Fall Time		---	10	---	
$C_{iss}$	Input Capacitance	$V_{DS}=20V, V_{GS}=0V, f=1\text{MHz}$	---	5100	---	pF
$C_{oss}$	Output Capacitance		---	1600	---	
$C_{rss}$	Reverse Transfer Capacitance		---	100	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$I_S$	Diode continuous forward current	$V_G=V_D=0V, \text{Force Current}$	---	---	170	A
$I_{S,pulse}$	Diode pulse current		---	---	450	A
$V_{SD}$	Diode Forward Voltage	$V_{GS}=0V, I_F=28A, T_J=25^{\circ}\text{C}$	---	---	1.2	V

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