

General Description

The CMSA090N15 uses advanced SGT technology to provide excellent RDS(ON). This device is well suited for high efficiency fast switching applications.

Features

- Low On-Resistance
- 100% avalanche tested
- Low Gate Charge
- RoHS Compliant

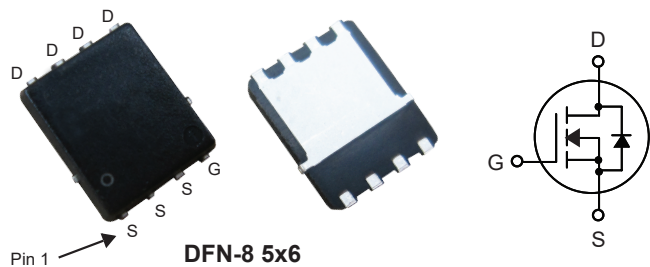
Product Summary

BVDSS	R _{DS(on)} max.	ID
150V	9.5mΩ	100A

Applications

- Adaptors

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA090N15	DFN-8 5x6	CMSA090N15

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	150	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current	100	A
I _D @T _C =100°C	Continuous Drain Current	64	A
I _{DM}	Pulsed Drain Current	400	A
EAS	Single Pulse Avalanche Energy ¹	648	mJ
P _D @T _C =25°C	Total Power Dissipation	215	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient(Steady-State)	---	50	°C/W
R _{θJC}	Thermal Resistance Junction-case(Steady-State)	---	0.58	°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	$V_{GS}=0V$, $I_D=250\mu A$	150	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=20A$	---	8.3	9.5	mΩ
		$V_{GS}=4.5V$, $I_D=20A$	---	9.6	12	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=150V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=10A$	---	30	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	1.8	---	Ω
Q_g	Total Gate Charge	$I_D=20A$	---	44	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=75V$	---	10	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	7	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=75V$	---	13	---	ns
T_r	Rise Time	$V_{GS}=10V$	---	4.5	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_{GEN}=3\Omega$	---	40	---	
T_f	Fall Time	$R_L=3.75\Omega$	---	13	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3200	---	pF
C_{oss}	Output Capacitance		---	2400	---	
C_{rss}	Reverse Transfer Capacitance		---	45	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	100	A
I_{SM}	Pulsed Source Current		---	---	400	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=20A$, $T_J=25^{\circ}\text{C}$	---	0.80	1.2	V
t_{rr}	Reverse Recovery Time	$di/dt=500A/\mu s$	---	66	---	ns
Q_{rr}	Reverse Recovery Charge	$V_{GS}=0V$, $I_S=20A$	---	570	---	nC

Note :

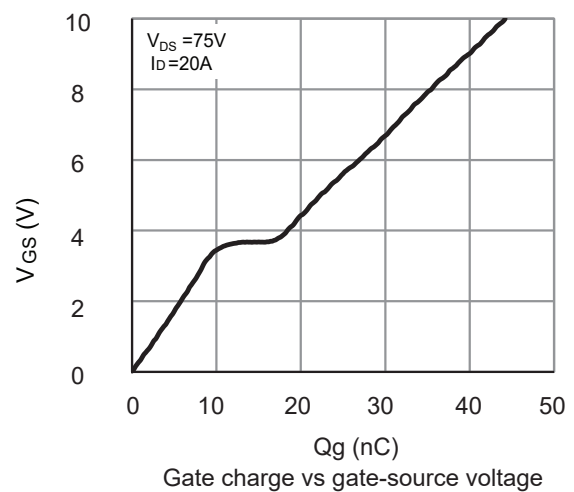
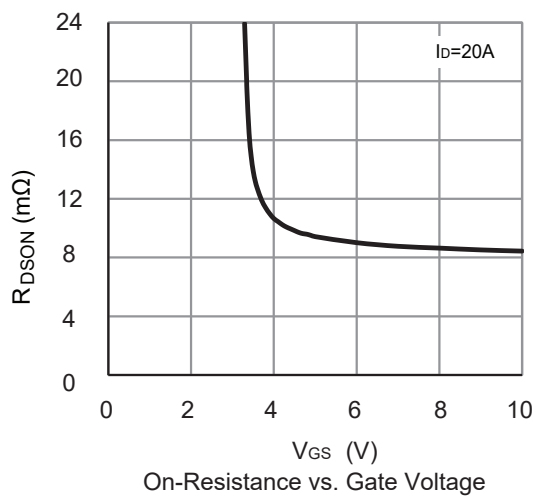
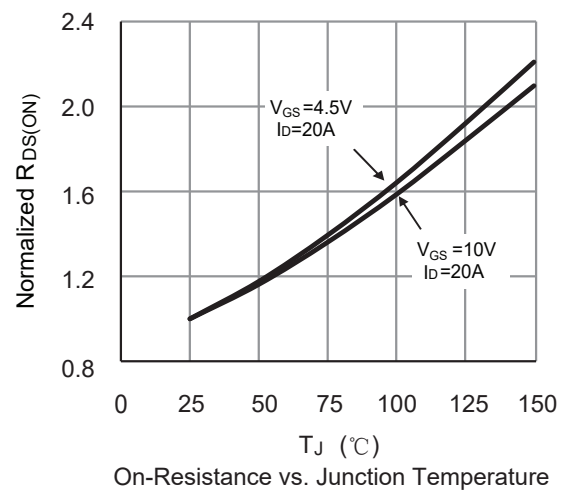
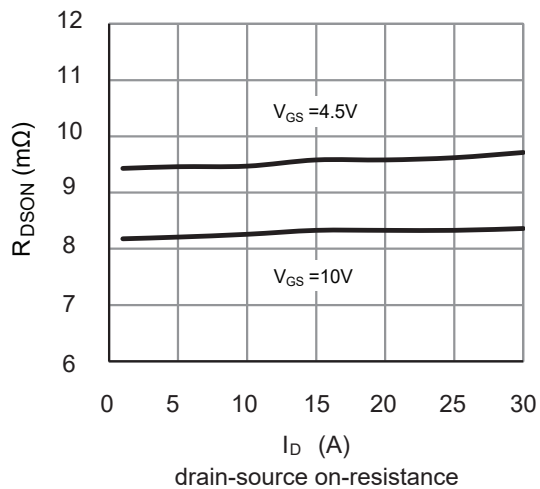
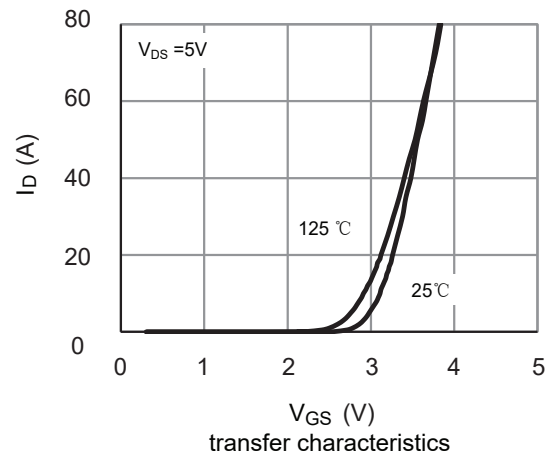
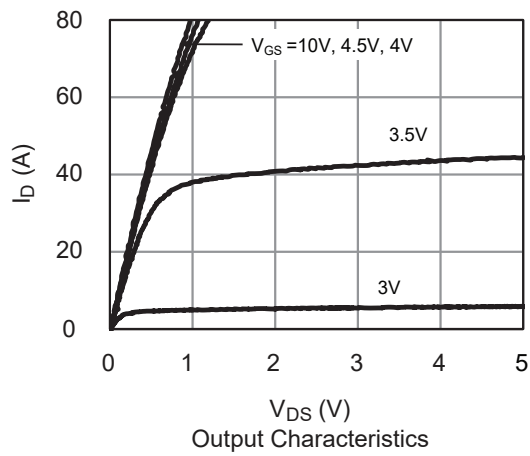
1.The EAS data shows Max. rating . The test condition is $V_{DD}=80V$, $V_{GS}=10V$, $L=1\text{mH}$, $I_{AS}=36A$.

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

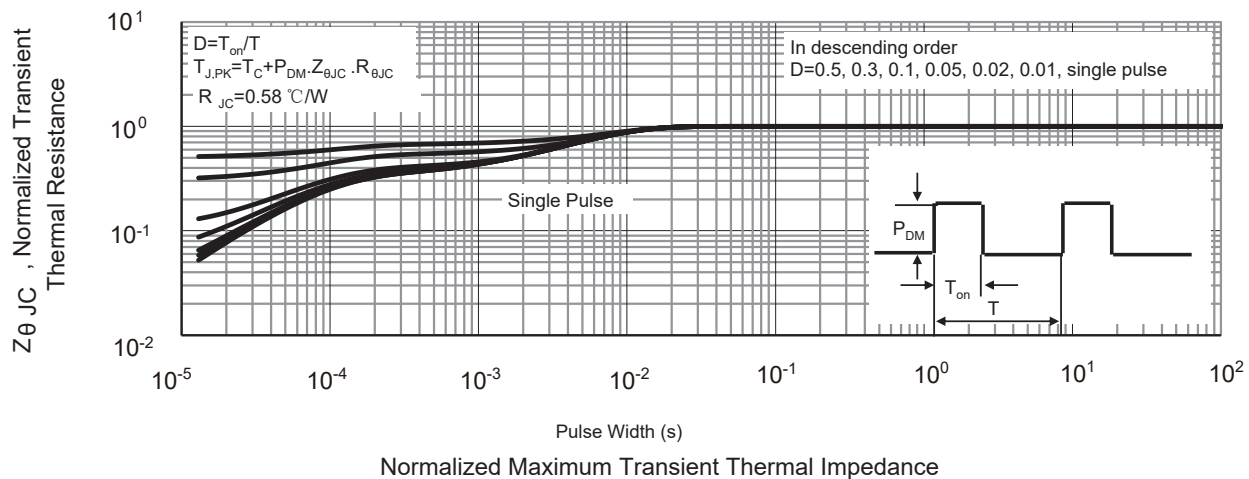
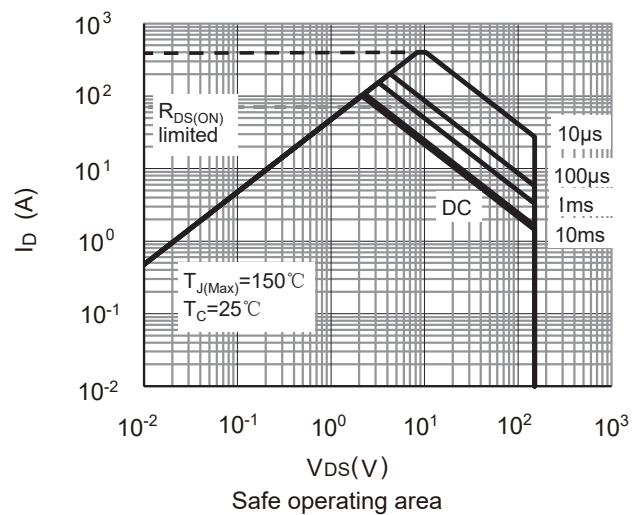
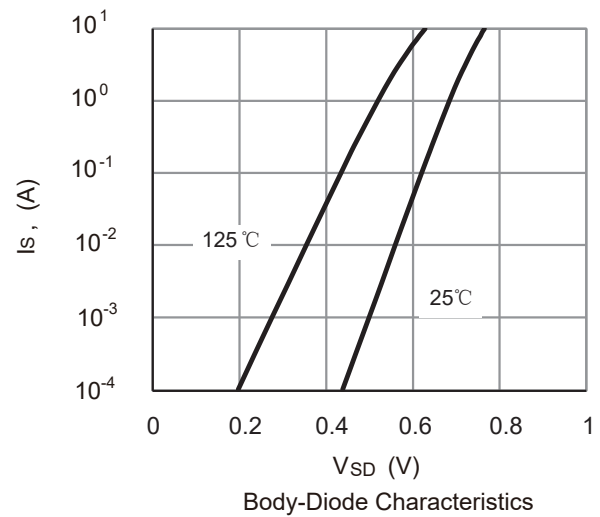
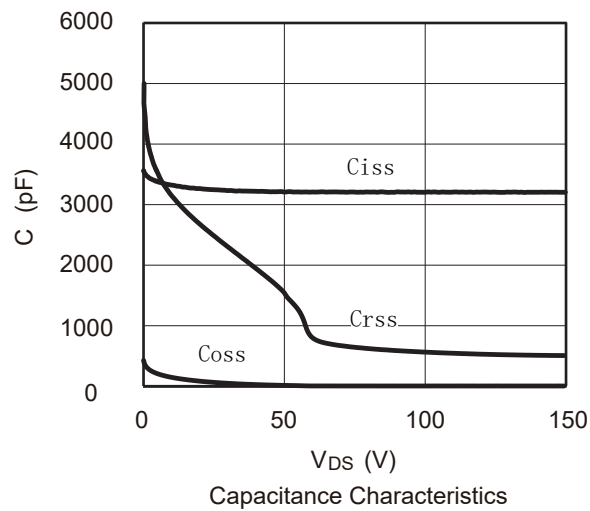
Cmos assumes no liability for customers' product design or applications.

Cmos reserves the right to improve product design ,functions and reliability without notice.Please refer to the latest version of specification.

Typical Characteristics



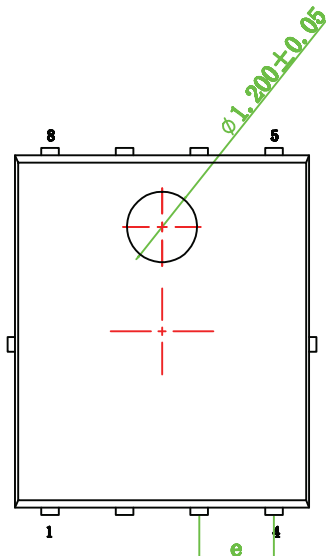
Typical Characteristics



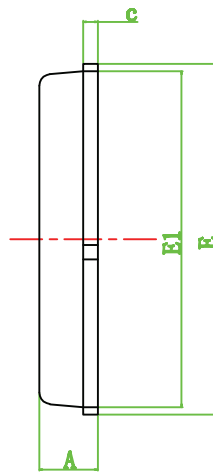
Package Dimension

DFN-8 5x6

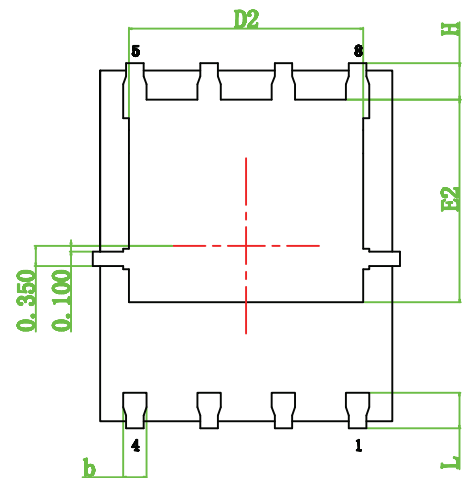
Unit :mm



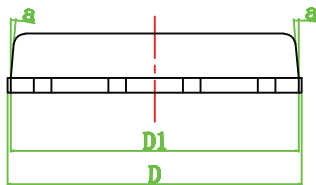
Top View



Side View



Bottom View



Front View

symbol	Dimension in mm		
	MIN	NOM	MAX
A	0.900	1.000	1.100
b	0.330	0.400	0.510
c	0.200	0.250	0.300
D	4.820	5.020	5.220
D2	4.1	4.2	4.3
E	5.900	6.000	6.100
E1	5.700	5.750	5.800
E2	3.45	3.55	3.65
e	—	1.270	—
H	0.520	0.625	0.720
D1	4.800	4.900	5.000
L	0.510	0.610	0.710
a	0°	—	10°
N	8		
MD/ME	4/2		