

CMP200N25/CMB200N25/CMI200N25/CMF200N25

250V, 17mΩ typ., 90A N-Channel MOSFET

General Description

The 200N25 uses advanced SGT technology to provide excellent RDS(ON). This device is suitable for use as a Battery protection or in other Switching application.

Features

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

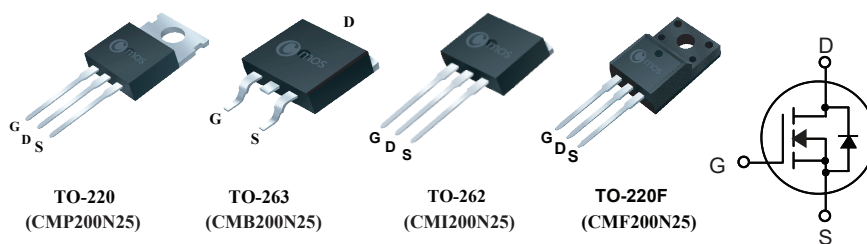
Product Summary

BVDSS	RDS(on) max.	ID
250V	19mΩ	90A

Applications

- DC/DC Converter
- Battery management System
- Uninterruptible Power Supply

TO-220/263/262/220F Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	220/263/262	220F	Units
V_{DS}	Drain-Source Voltage	250		V
V_{GS}	Gate-Source Voltage	±20		V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	90	90*	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	57	57*	A
I_{DM}	Pulsed Drain Current	360	360*	A
EAS	Single Pulse Avalanche Energy (Note 1)	2030		mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	300	50	W
T_{STG}	Storage Temperature Range	-55 to 150		°C
T_J	Operating Junction Temperature Range	-55 to 150		°C

* Drain current limited by maximum junction temperature.

Thermal Data

Symbol	Parameter	220/263/262	220F	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient Max.	62	62	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case Max.	0.42	2.50	°C/W

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Electrical Characteristics (T_J=25°C , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250μA	250	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =20A	---	17	19	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	2	---	4	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =250V , V _{GS} =0V	---	---	1	μA
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±20V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =10V , I _D =18A	---	51	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	3.7	---	Ω
Q _g	Total Gate Charge	V _{DS} =125V , I _D =40A V _{GS} =10V	---	72	---	nC
Q _{gs}	Gate-Source Charge		---	28.6	---	
Q _{gd}	Gate-Drain Charge		---	12.6	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =125V , V _{GS} =10V R _{G_ext} =2.7Ω	---	15	---	ns
T _r	Rise Time		---	55	---	
T _{d(off)}	Turn-Off Delay Time		---	56	---	
T _f	Fall Time		---	51.5	---	
C _{iss}	Input Capacitance	V _{DS} =25V , V _{GS} =0V , f=1MHz	---	4600	---	pF
C _{oss}	Output Capacitance		---	3000	---	
C _{rss}	Reverse Transfer Capacitance		---	180	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Diode continuous forward current	V _G =V _D =0V , Force Current	---	---	90	A
I _{S,pulse}	Diode pulse current		---	---	360	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _F =20A , T _J =25 °C	---	0.81	1.2	V

Note :

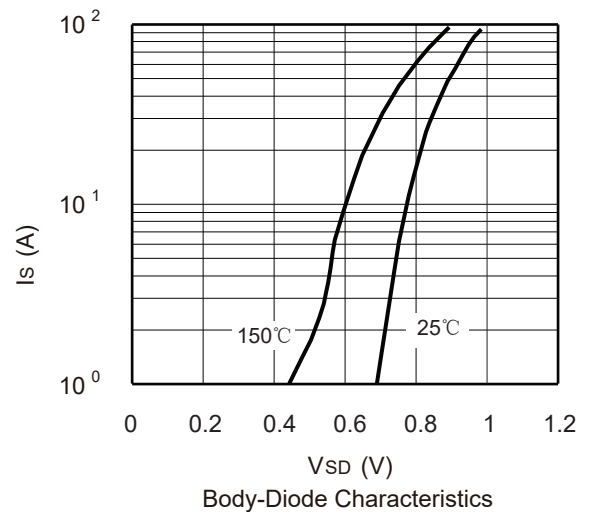
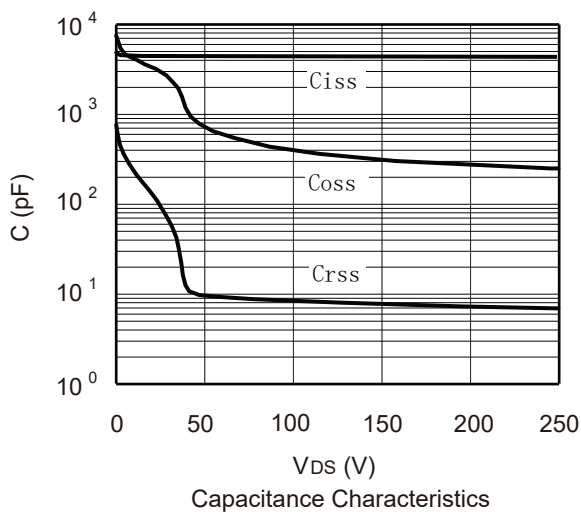
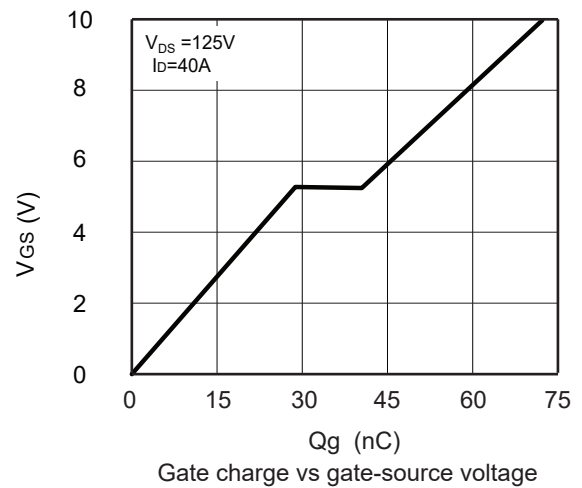
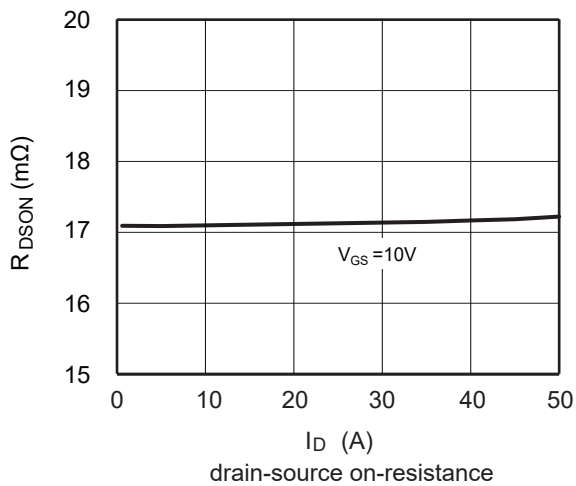
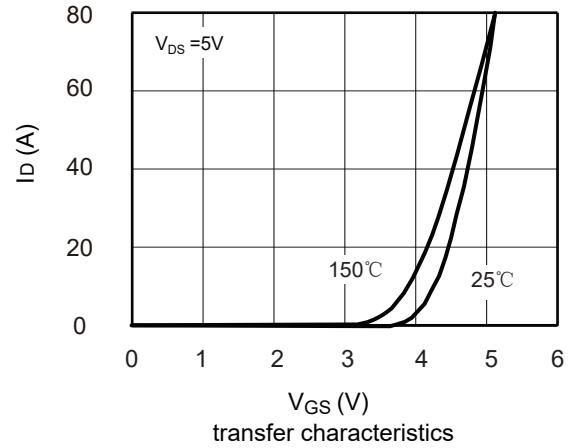
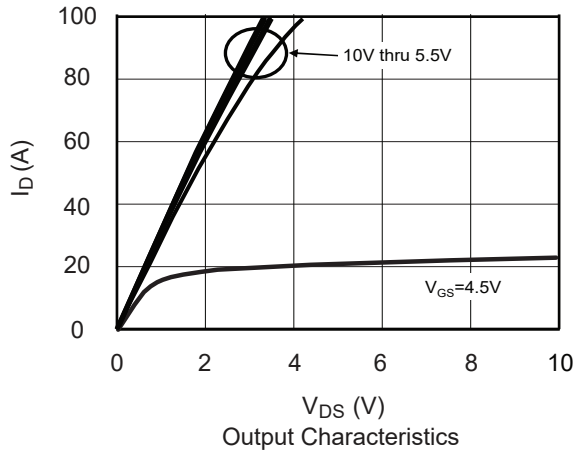
1.The EAS data shows Max. rating .The test condition is V_{DS}=80V , V_{GS}=10V , L=5mH , I_{AS}=28.5A.

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



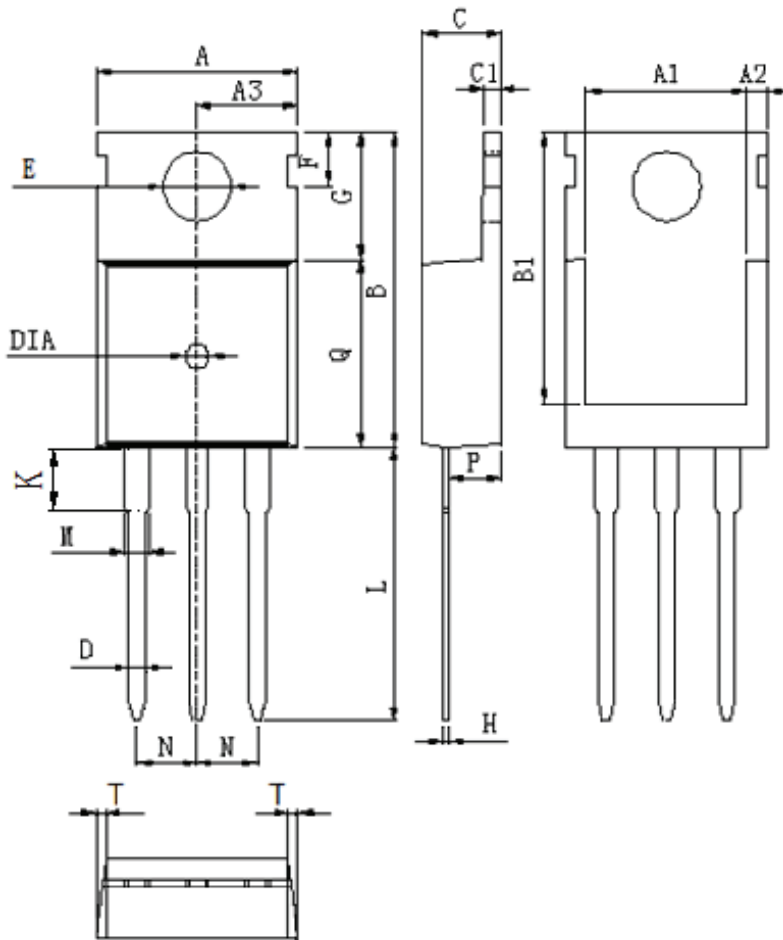
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Package Dimension

TO-220

Unit :mm



DIM	MILLIMETERS
A	10.0±0.3
A1	8.64±0.2
A2	1.15±0.1
A3	5.0±0.2
B	15.8±0.4
B1	13.2±0.3
C	4.56±0.1
C1	1.3±0.2
D	0.8±0.2
E	3.6±0.2
F	2.95±0.3
G	6.5±0.3
H	0.5±0.1
K	3.1±0.2
L	13.2±0.4
M	1.25±0.1
N	2.54±0.1
P	2.4±0.3
Q	9.0±0.3
T	W:0.35
DIA	⊙1.5 (deep 0.2)

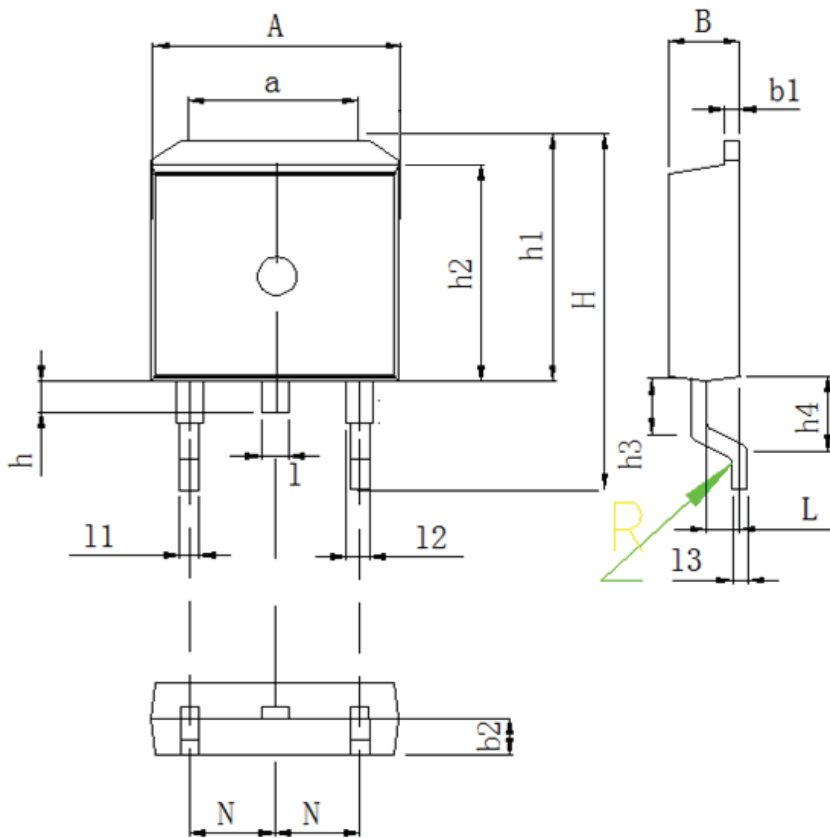
CMP200N25/CMB200N25/CMI200N25/CMF200N25

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Package Dimension

TO-263

Unit :mm

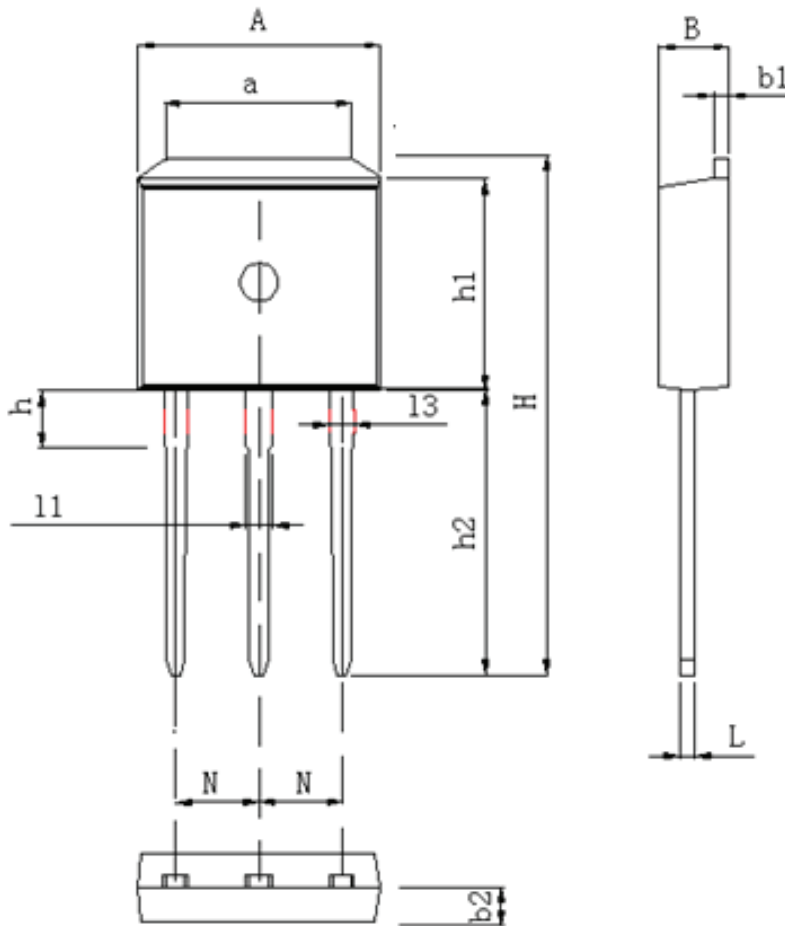


DIM	MILLIMETERS
A	9.8 ± 0.2
a	7.4 ± 0.4
B	4.5 ± 0.2
b1	1.3 ± 0.05
b2	2.4 ± 0.2
H	15.5 ± 0.3
h	1.54 ± 0.2
h1	10.5 ± 0.2
h2	9.2 ± 0.1
h3	1.54 ± 0.2
h4	2.7 ± 0.2
L	2.4 ± 0.2
1	1.3 ± 0.1
11	0.8 ± 0.1
12	1.3 ± 0.1
13	0.5 ± 0.1
N	2.54 ± 0.1
R	$0.5R \pm 0.05$

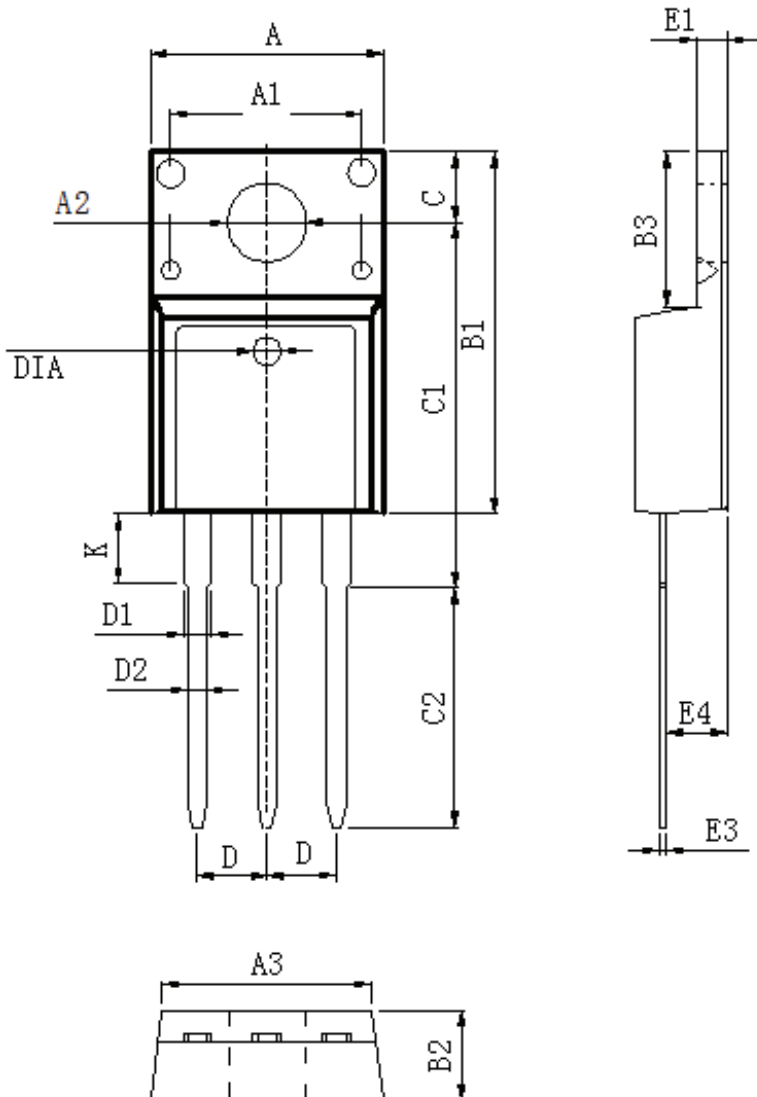
Package Dimension

TO-262

Unit :mm



DIM	MILLIMETERS
A	9.98 ± 0.2
a	7.4 ± 0.4
B	4.5 ± 0.2
b1	1.3 ± 0.05
b2	2.4 ± 0.2
H	23.9 ± 0.3
h	3.1 ± 0.2
h1	9.16 ± 0.2
h2	13.2 ± 0.2
L	0.5 ± 0.1
l1	1.3 ± 0.1
l2	0.8 ± 0.1
N	2.45 ± 0.1

Package Dimension
TO-220F
Unit :mm


DIM	MILLIMETERS
A	10.16 ± 0.3
A1	7.00 ± 0.1
A2	3.3 ± 0.2
A3	9.5 ± 0.2
B1	15.87 ± 0.3
B2	4.7 ± 0.2
B3	6.68 ± 0.4
C	3.3 ± 0.2
C1	12.57 ± 0.3
C2	10.02 ± 0.5
D	2.54 ± 0.05
D1	1.28 ± 0.2
D2	0.8 ± 0.1
K	3.1 ± 0.3
E1	2.54 ± 0.1
E3	0.5 ± 0.1
E4	2.76 ± 0.2
DIA	$\odot 1.5$ (deep 0.2)