CMP55N25/CMB55N25/CMI55N25/CMF55N25

250V, 69mΩ typ., 55A N-Channel MOSFET

General Description

This Power MOSFET is produced using Cmos's advanced planar stripe DMOS technology.This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance,and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficient switched mode power supplies and active power factor correction.

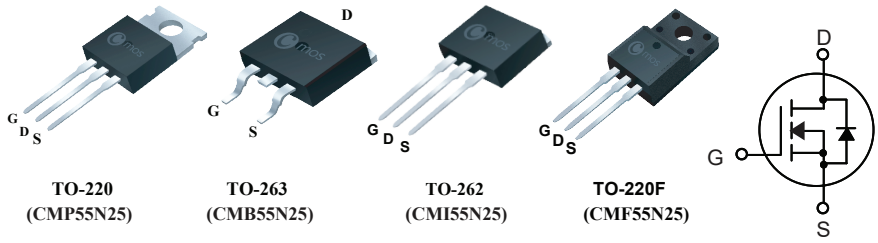
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
250V	77mΩ	55A

Applications

- Switching applications
- Synchronous Rectification

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



TO-220 (CMP55N25) | TO-263 (CMB55N25) | TO-262 (CMI55N25) | TO-220F (CMF55N25)

Features

- 100% avalanche tested
- Improved dv/dt capability
- RoHS Compliant

Absolute Maximum Ratings

Symbol	Parameter	220/263/262	220F	Units
V_{DS}	Drain-Source Voltage	250		V
V_{GS}	Gate-Source Voltage	±30		V
I_D@T_C=25℃	Continuous Drain Current	55	55*	A
I_D@T_C=100℃	Continuous Drain Current	38	38*	A
I_{DM}	Pulsed Drain Current	220	220*	A
EAS	Single Pulse Avalanche Energy (Note 1)	2102		mJ
P_D@T_C=25℃	Total Power Dissipation	200	45	W
T_{STG}	Storage Temperature Range	-55 to 150		℃
T_J	Operating Junction Temperature Range	-55 to 150		℃

* 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	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case Max.	0.62	2.78	℃/W

250V, 69mΩ typ., 55A N-Channel MOSFET

Electrical Characteristics (T_J=25℃ , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	250	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=25A	---	69	77	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	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±30V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=10V, I_D =25A	---	32	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	1	---	Ω
Q_g	Total Gate Charge	V_{DS}=200V , I_D=50A V_{GS}=10V	---	76	---	nC
Q_{gs}	Gate-Source Charge		---	20	---	
Q_{gd}	Gate-Drain Charge		---	25	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=125V , V_{GS}=10V , I_D=50A R_G =25Ω	---	55	---	ns
T_r	Rise Time		---	50	---	
$T_{d(off)}$	Turn-Off Delay Time		---	212	---	
T_f	Fall Time		---	31	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	4000	---	pF
C_{oss}	Output Capacitance		---	400	---	
C_{rss}	Reverse Transfer Capacitance		---	35	---	

Diode Characteristics

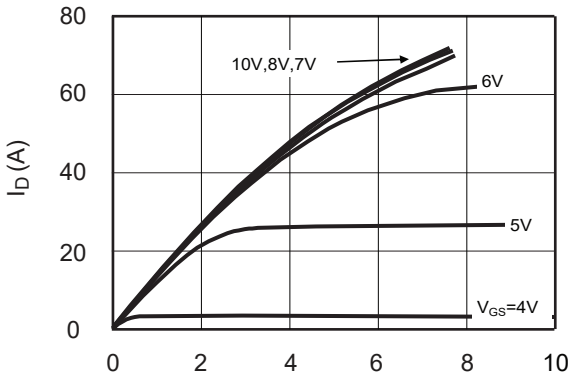
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	V_G=V_D=0V , Force Current	---	---	55	A
$I_{S,pulse}$	Diode pulse current		---	---	220	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_F=25A , Tj=25 ℃	---	0.87	1.4	V

Note :

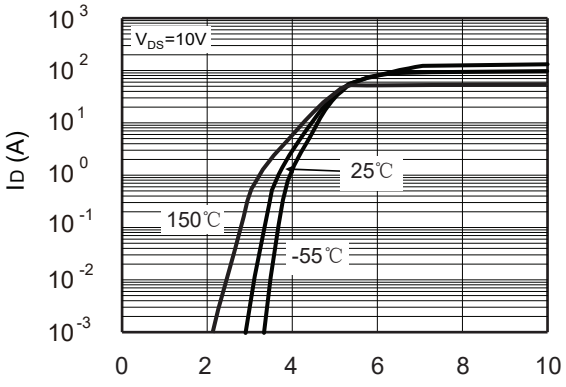
1.The EAS data shows Max. rating .The test condition is V_{DS}=80V , V_{GS}=10V , L=5mH , I_{AS}=29A.

This product has been designed and qualified for the counsumer market.
Cmos assumes no liability for customers' product design or applications.
Cmos reserver the right to improve product design ,functions and reliability wihtout notice.

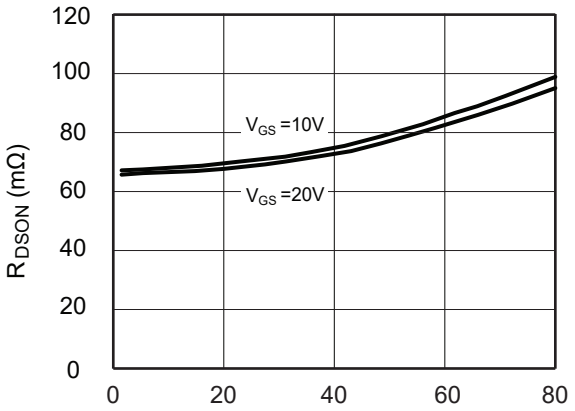
Typical Characteristics



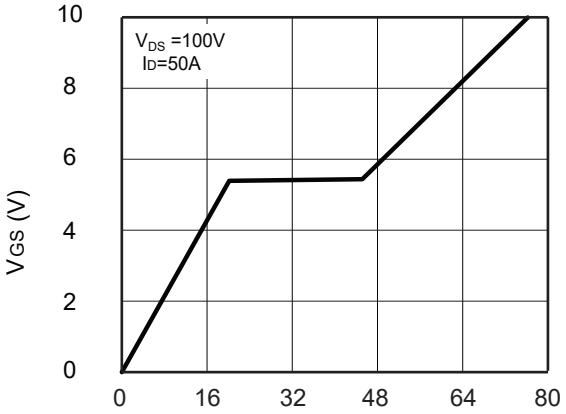
Output Characteristics



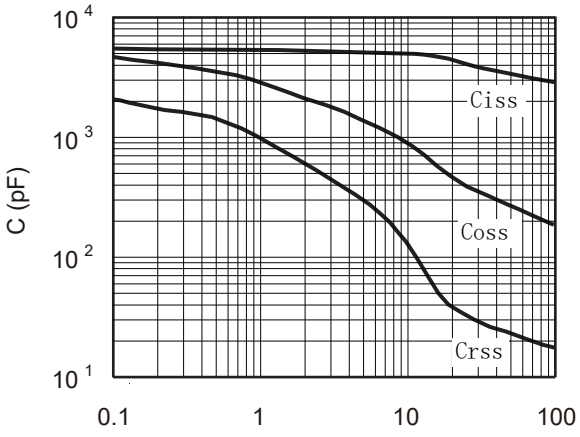
transfer characteristics



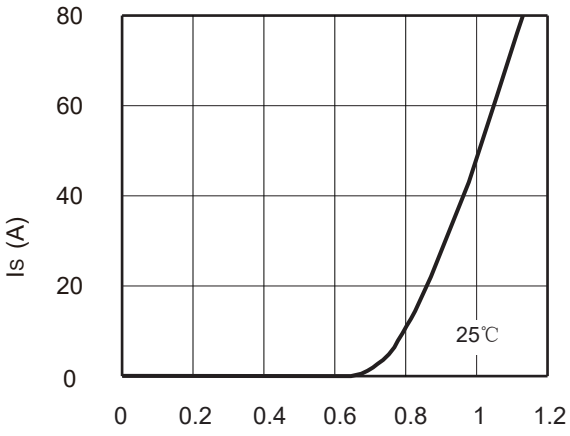
drain-source on-resistance



Gate charge vs gate-source voltage



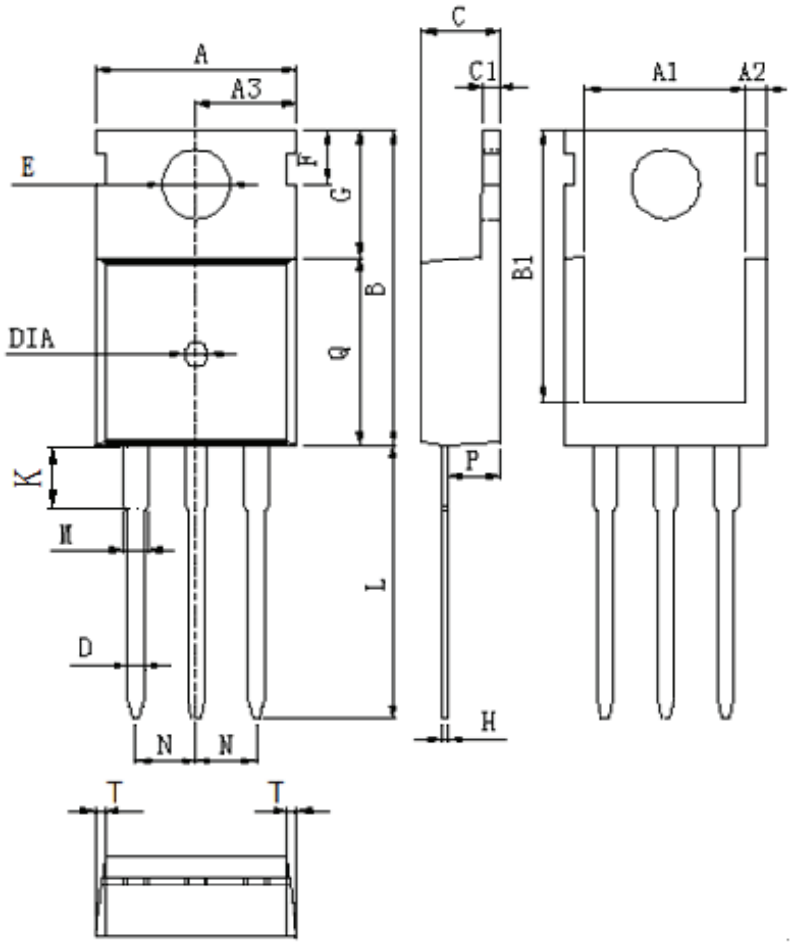
Capacitance Characteristics



Body-Diode Characteristics

Package Dimension

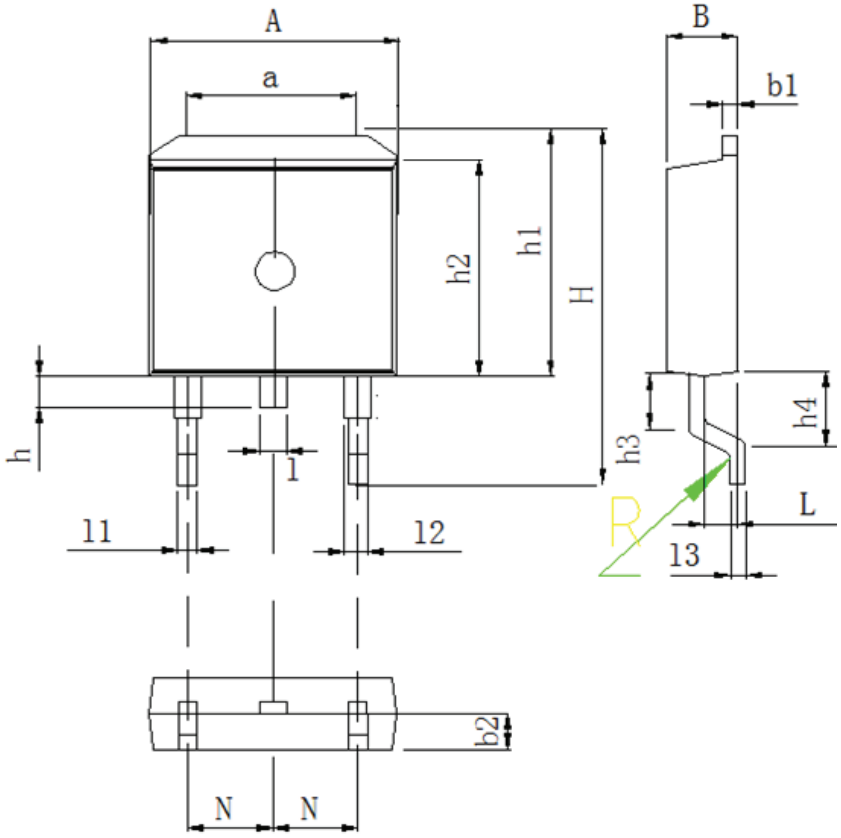
TO-220 Unit :mm



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)

Package Dimension

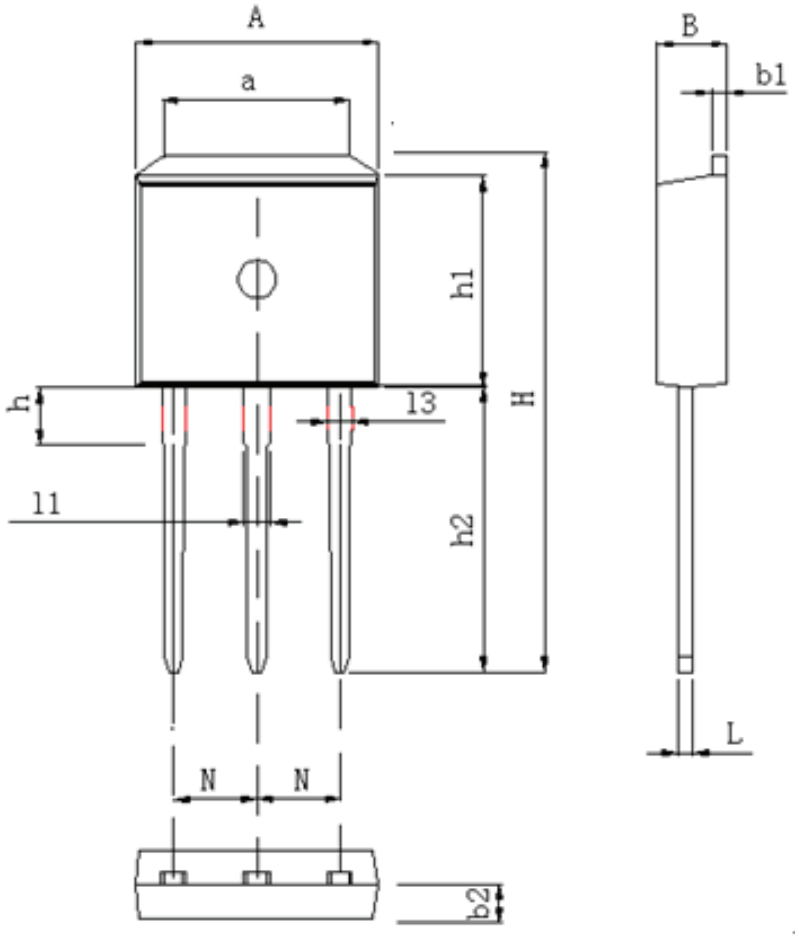
TO-263 Unit :mm



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
l	1.3±0.1
l1	0.8±0.1
l2	1.3±0.1
l3	0.5±0.1
N	2.54±0.1
R	0.5R±0.05

Package Dimension

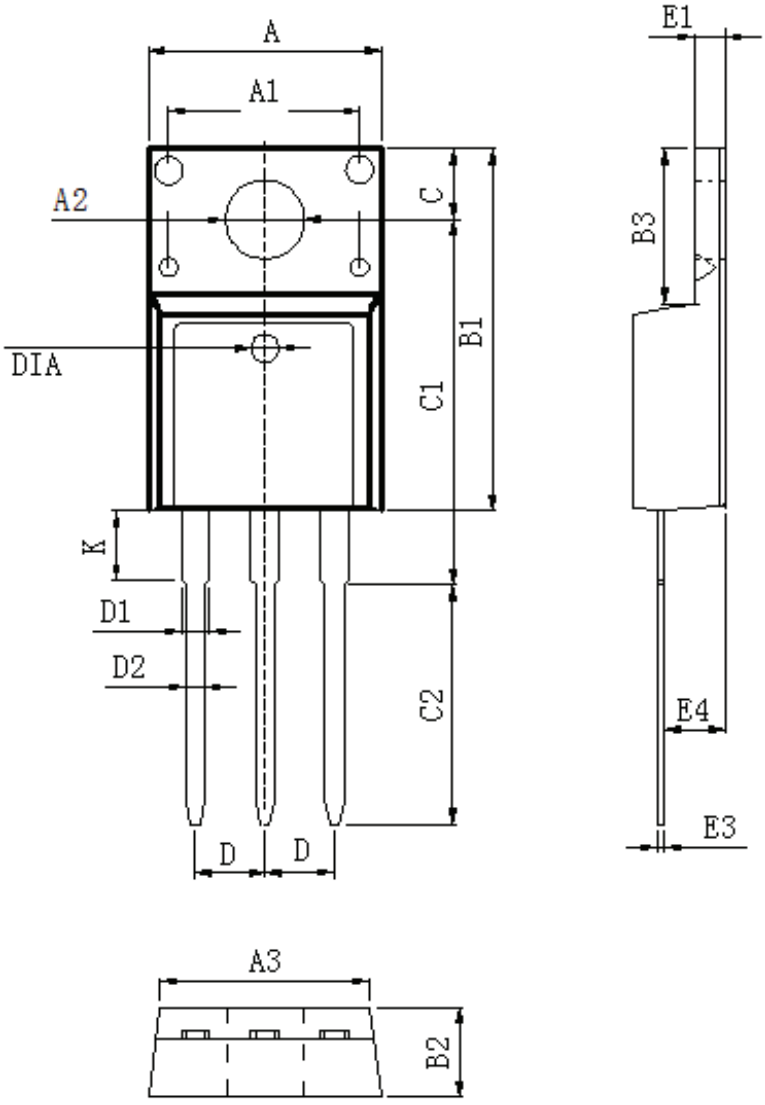
TO-262 Unit :mm



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	⊙1.5(deep 0.2)