

General Description

The 16N25 uses advanced planar stripe DMOS technology and design to provide excellent RDS(ON). These devices are well suited for high efficiency switching DC/DC converters, switch mode power supplies, DC-AC converters for uninterrupted power supplies and motor controls.

Product Summary

BVDSS	R _{DS(on)} max.	ID
250V	0.245Ω	16A

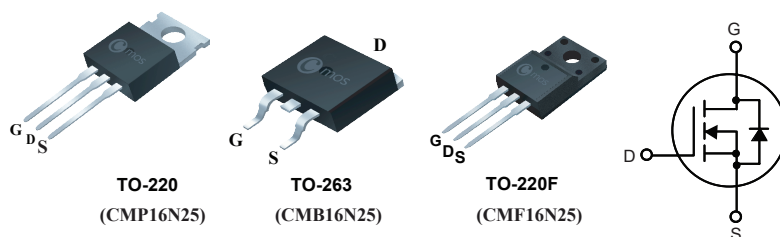
Applications

- Switch mode power supplies (SMPS)
- PWM Motor Controls
- DC-DC converters

TO-220/263/220F Pin Configuration

Features

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



Absolute Maximum Ratings

Symbol	Parameter	220/263	220F	Units
V _{DS}	Drain-Source Voltage	250		V
V _{GS}	Gate-Source Voltage	±30		V
I _D @T _C =25°C	Continuous Drain Current	16	16*	A
I _D @T _C =100°C	Continuous Drain Current	10	10*	A
I _{DM}	Pulsed Drain Current ^(Note 1)	50	50*	A
EAS	Single Pulse Avalanche Energy ^(Note 2)	360		mJ
dv/dt	Peak Diode Recovery dv/dt ^(Note 3)	5.5		V/ns
P _D @T _C =25°C	Total Power Dissipation	140	45	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	220F	Unit
R _{θJA}	Thermal Resistance Junction-ambient	62.5	62.5	°C/W
R _{θJC}	Thermal Resistance Junction-case	0.9	2.78	°C/W

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 =250uA	250	---	---	V
ΔBV _{DSS} /ΔT _J	BVDSS Temperature Coefficient	Reference to 25 °C, I _D =250uA	---	0.31	---	V/°C
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D = 8A	---	0.22	0.245	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	2	---	4	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =250V, V _{GS} =0V	---	---	10	uA
		V _{DS} =200V, V _{GS} =0V, TC=125°C	---	---	100	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±30V, V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =15V, I _D =8A (Note 4)	---	11	---	S
Q _g	Total Gate Charge	I _D =16A	---	40	52	nC
Q _{gs}	Gate-Source Charge	V _{DS} =200V	---	5.5	---	
Q _{gd}	Gate-Drain Charge	V _{GS} =10V (Note 4, 5)	---	23	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =125V	---	15	---	ns
T _r	Rise Time	I _D =16A	---	130	---	
T _{d(off)}	Turn-Off Delay Time	R _G =25Ω	---	135	---	
T _f	Fall Time	(Note 4, 5)	---	105	---	
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	1200	---	pF
C _{oss}	Output Capacitance		---	170	---	
C _{rss}	Reverse Transfer Capacitance		---	55	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V, Force Current	---	---	16	A
I _{SM}	Pulsed Source Current		---	---	50	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =15A, T _J =25 °C	---	---	1.5	V
t _{rr}	Reverse Recovery Time	V _{GS} =0V, I _S =16A, T _J =25 °C	---	260	---	ns
Q _{rr}	Reverse Recovery Charge	dI _F /dI _R =100A/μs	---	2.47	---	μC

Note :

1. Repetitive Rating : Pulse width limited by maximum junction temperature
2. L = 1mH, I_{AS} = 27A, V_{DD} =50V, Starting T_J = 25 °C
3. I_{SD} ≤16A, di/dt ≤300A/μs, V_{DD} ≤BV_{DSS}, Starting T_J =25 °C
4. Pulse Test Pulsewidth ≤300μs, Duty cycle ≤2%
5. Essentially independent of operating temperature

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