

General Description

The 100N03 uses advanced trench technology to provide excellent RDS(ON) and low gate charge. This device is suitable for use as a wide variety of applications.

Features

- Simple Drive Requirement
- Fast Switching
- Low On-Resistance

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	100	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	70	A
I_{DM}	Pulsed Drain Current ¹	300	A
EAS	Single Pulse Avalanche Energy ²	400	mJ
P_D	Total Power Dissipation	100	W
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	175	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.36	$^\circ\text{C/W}$

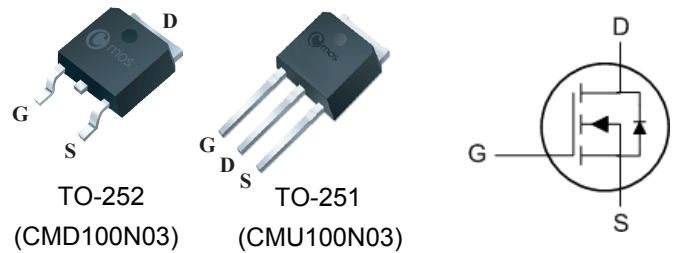
Product Summary

BVDSS	RDSON	ID
30V	3.5m Ω	100A

Applications

- Uninterruptible Power Supply
- DC Motor Control
- Load Switch

TO-252/251 Pin Configuration



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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=20A$	---	---	3.5	m Ω
		$V_{GS}=5V, I_D=20A$	---	---	6.0	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	1	1.6	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=24V, V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=16V, I_D=26A$	---	45	---	S
R_g	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$	---	2	---	Ω
Q_g	Total Gate Charge	$I_D=30A$	---	70	---	nC
Q_{gs}	Gate-Source Charge	$V_{DD}=15V$	---	10	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	18	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=15V$	---	20	---	ns
T_r	Rise Time	$I_D=30A$	---	58	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=12\Omega$	---	120	---	
T_f	Fall Time	$V_{GS}=10V$	---	90	---	
C_{iss}	Input Capacitance	$V_{DS}=15V, V_{GS}=0V, f=1\text{MHz}$	---	5500	---	pF
C_{oss}	Output Capacitance		---	950	---	
C_{rss}	Reverse Transfer Capacitance		---	260	---	

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		---	---	300	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=1A, T_J=25^{\circ}\text{C}$	---	---	1.2	V

Note :

1.Repetitive rating; pulse width limited by maximum junction temperature

2.The test condition is $V_{DD}=15V, L=0.5\text{mH}, I_D=40A$

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