

General Description

SRFET™ 90N03S uses advanced trench technology with a monolithically integrated Schottky diode to provide excellent $R_{DS(ON)}$ and low gate charge. This device is suitable for use as a wide variety of applications.

Features

- Low On-Resistance
- 100% avalanche tested
- Integrated Schottky Diode (SRFET)
- RoHS Compliant

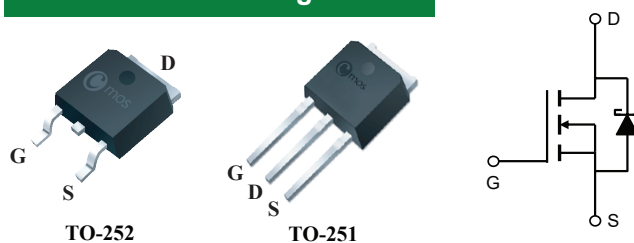
Product Summary

BVDSS	$R_{DS(ON)}$	ID
30V	3.5mΩ	90A

Applications

- DC/DC converters

TO-252/251 Pin Configuration



Type	Package	Marking
CMD90N03S	TO-252	CMD90N03S
CMU90N03S	TO-251	CMU90N03S

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current, V_{GS} @ 10V	90	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current, V_{GS} @ 10V	63	A
I_{DM}	Pulsed Drain Current	360	A
EAS	Single Pulse Avalanche Energy ¹	249	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	100	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
$R_{\theta JA}$	Thermal Resistance Junction-ambient (PCB Mount)	---	50	°C/W
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	1.05	°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	$V_{GS}=0V$, $I_D=10mA$	30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=28A$	---	3	3.5	$m\Omega$
		$V_{GS}=4.5V$, $I_D=25A$	---	4	5	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}$, $I_D=250\mu A$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=30V$, $V_{GS}=0V$, $T_J=25^{\circ}\text{C}$	---	---	0.5	mA
		$V_{DS}=30V$, $V_{GS}=0V$, $T_J=55^{\circ}\text{C}$	---	---	100	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=20A$	---	30	---	S
R_g	Gate Resistance	$V_{DS}=10V$, $V_{GS}=0V$, $f=1MHz$	---	2	---	Ω
Q_g	Total Gate Charge	$V_{DS}=15V$, $V_{GS}=10V$, $I_D=20A$	---	29	---	nC
Q_{gs}	Gate-Source Charge		---	6	---	
Q_{gd}	Gate-Drain Charge		---	5.3	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=15V$, $V_{GS}=10V$, $R_L=0.75\Omega$ $R_{GEN}=3\Omega$	---	8	---	ns
T_r	Rise Time		---	4	---	
$T_{d(off)}$	Turn-Off Delay Time		---	27	---	
T_f	Fall Time		---	7	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1MHz$	---	2000	---	pF
C_{oss}	Output Capacitance		---	550	---	
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	---	---	90	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=28A$, $T_J=25^{\circ}\text{C}$	---	0.85	1.3	V

Notes:

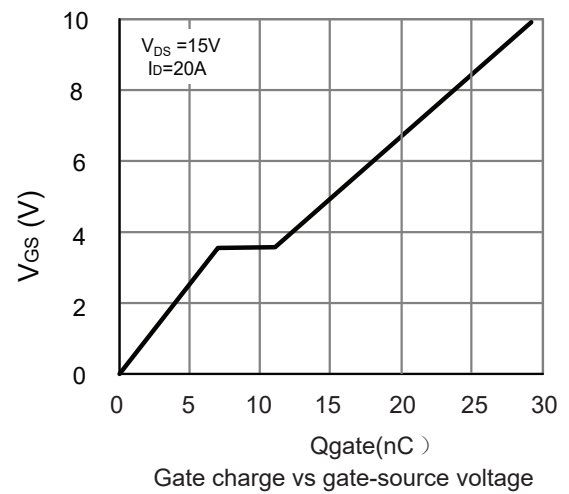
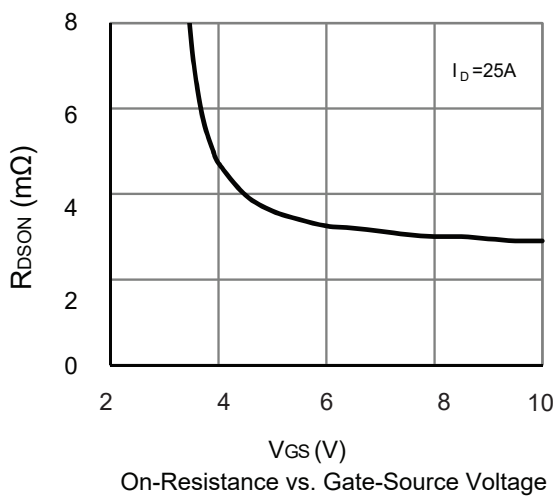
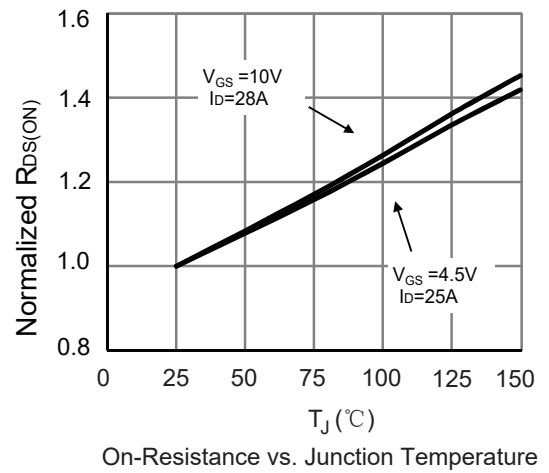
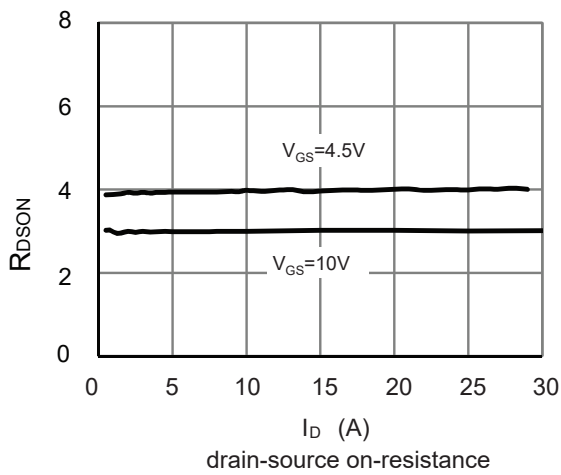
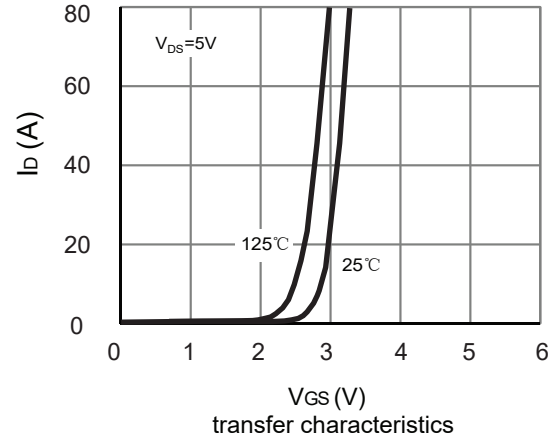
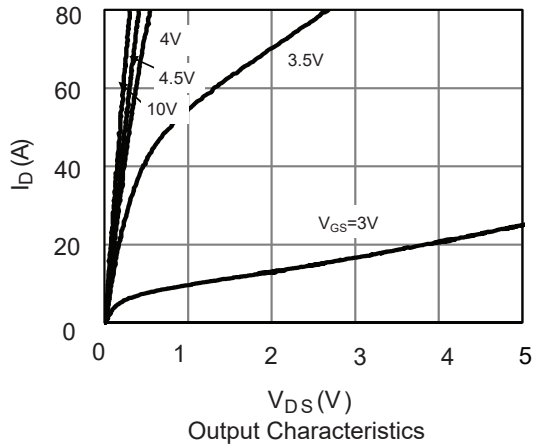
1.The EAS data shows Max. rating .The test condition is $V_{DS}=25V$, $V_{GS}=10V$, $L=0.5mH$, $I_{AS}=31.6A$.

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Cmos reserves the right to improve product design ,functions and reliability without notice.

Typical Characteristics



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