

General Description

The MOSFETs utilize advanced processing techniques to achieve extremely low on-resistance per silicon area. This benefit, combined with the fast switching speed and ruggedized device design, provides the designer with an extremely efficient and reliable device for use in a wide variety of applications.

Features

- Advanced Process Technology Fast Switching
- 100% avalanche tested
- RoHS Compliant

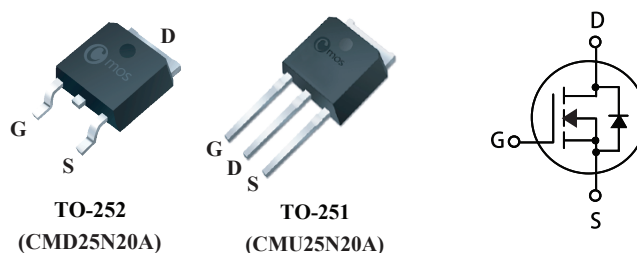
Product Summary

BVDSS	RDSON	ID
200V	0.17Ω	20A

Applications

- PWM Motor Controls
- LED TV
- DC-DC Converters

TO-252/251 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	200	V
V_{GS}	Gate-Source Voltage	±30	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	20	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	11.3	A
I_{DM}	Pulsed Drain Current	80	A
EAS	Single Pulse Avalanche Energy ¹	688	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	70	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient ²	---	50	°C/W
$R_{\theta JC}$	Thermal Resistance Junction -Case ²	---	1.79	°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	$V_{GS}=0V$, $I_D=250\mu A$	200	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance ³	$V_{GS}=10V$, $I_D=9A$	---	---	0.17	Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=200V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance ³	$V_{DS}=10V$, $I_D=10A$	---	15	---	S
Q_g	Total Gate Charge	$V_{DS}=100V$, $V_{GS}=10V$, $I_D=18A$	---	22	---	nC
Q_{gs}	Gate-Source Charge ^{3 4}		---	6.8	---	
Q_{gd}	Gate-Drain Charge ^{3 4}		---	7	---	
$T_{d(on)}$	Turn-On Delay Time ^{3 4}	$V_{DD}=100V$, $R_G=25\Omega$, $I_D=18A$	---	15	---	ns
T_r	Rise Time ^{3 4}		---	120	---	
$T_{d(off)}$	Turn-Off Delay Time ^{3 4}		---	135	---	
T_f	Fall Time ^{3 4}		---	98	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1MHz$	---	1000	---	pF
C_{oss}	Output Capacitance		---	230	---	
C_{rss}	Reverse Transfer Capacitance		---	60	---	

Diode Characteristics

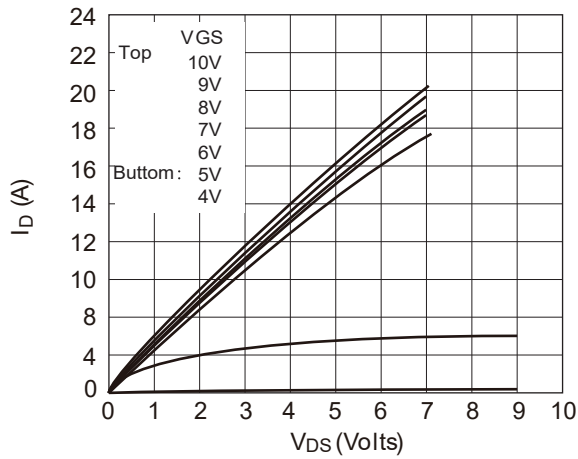
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	20	A
I_{SM}	Pulsed Source Current		---	---	80	A
V_{SD}	Diode Forward Voltage ³	$V_{GS}=0V$, $I_S=9A$, $T_J=25^{\circ}\text{C}$	---	---	1.4	V

Note :

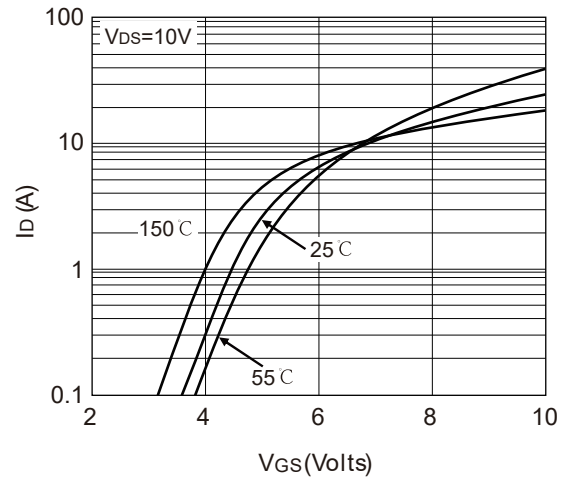
- 1.1.The EAS data shows Max. rating . The test condition is $V_{DD}=50V$, $V_{GS}=10V$, $L=5mH$, $I_D=16.6A$
- 2.When mounted on the minimum pad size recommended (PCB Mount)
- 3.Essentially independent of operating temperature
- 4.Pulse Test : Pulse Width 300us, Duty cycle $\leq 2\%$

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.

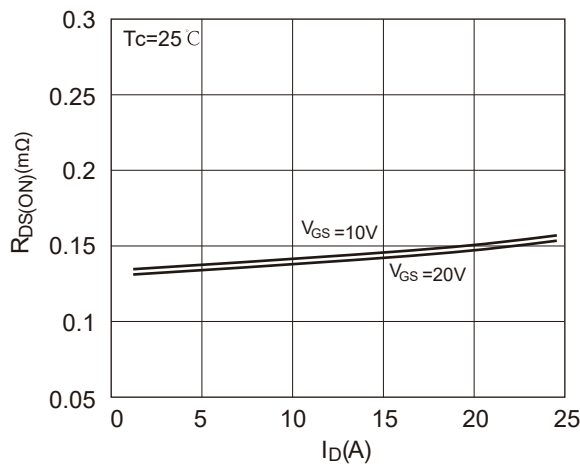
Typical Characteristics



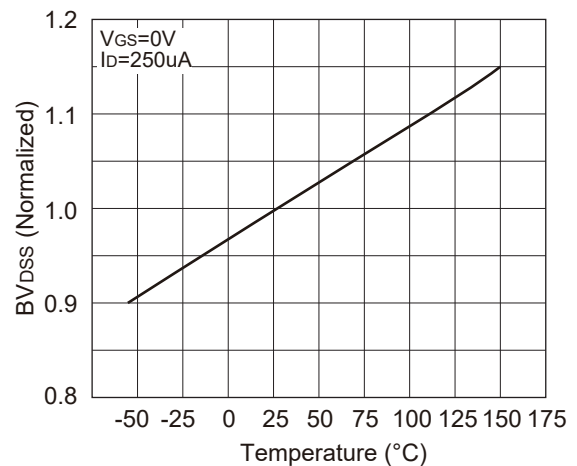
On-Region Characteristics



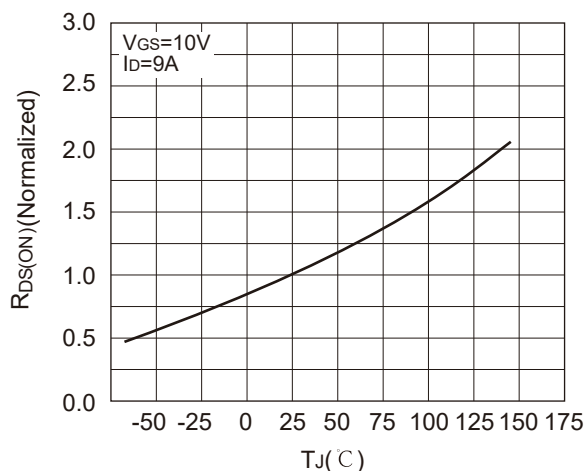
Transfer Characteristics



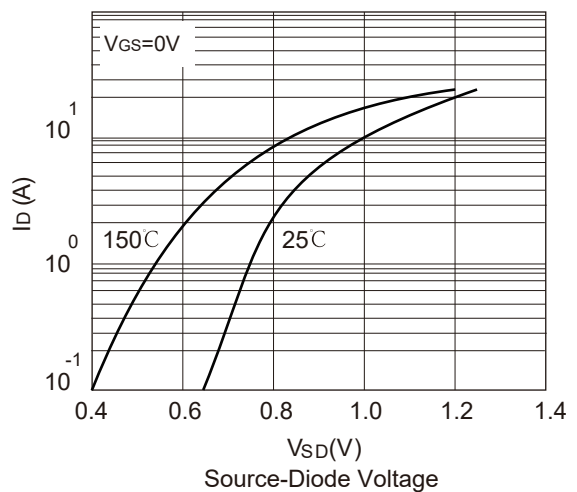
On-Resistance vs. Drain Current and Gate



On-Resistance vs. Junction Temperature

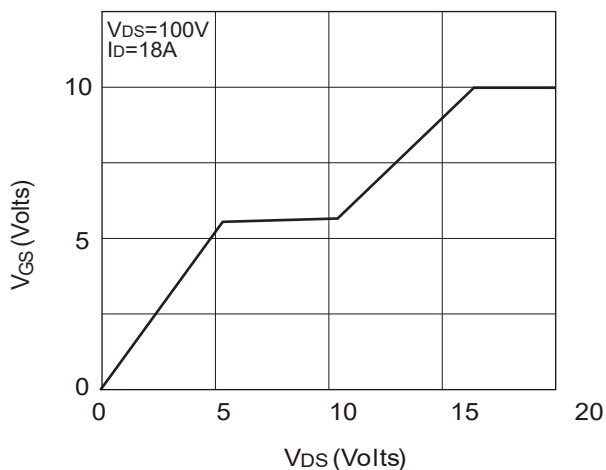


Break Down vs. Junction Temperature

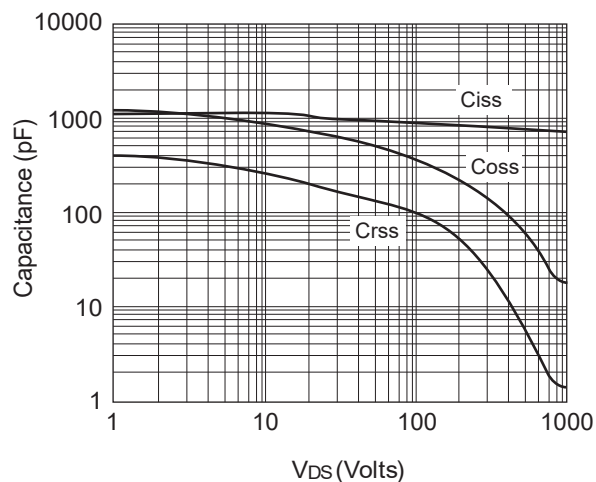


Source-Diode Voltage

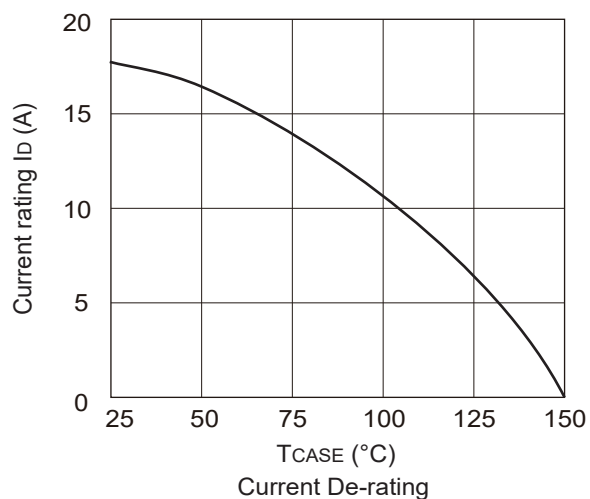
Typical Characteristics



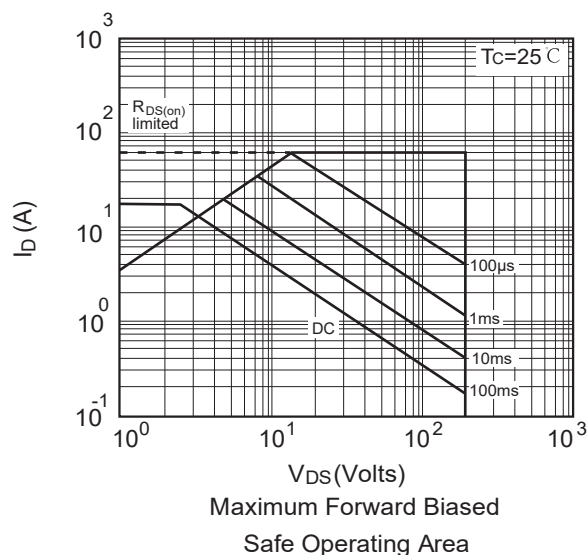
On-Region Characteristics



Capacitance Characteristics



Current De-rating



Maximum Forward Biased
Safe Operating Area