

### 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
- 175°C Operating Temperature
- Fast Switching
- Fully Avalanche Rated
- Simple Drive Requirements

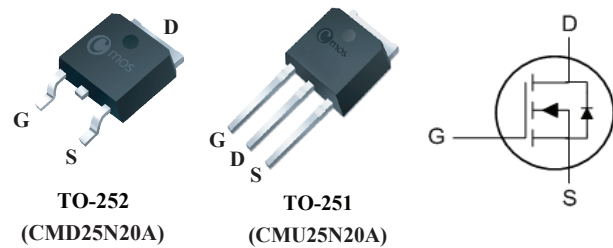
### Product Summary

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
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	20	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	11.3	A
$I_{DM}$	Pulsed Drain Current	60	A
EAS	Single Pulse Avalanche Energy <sup>1</sup>	156	mJ
$P_D@T_C=25^\circ\text{C}$	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 <sup>2</sup>	---	50	°C/W
$R_{\theta JC}$	Thermal Resistance Junction -Case <sup>2</sup>	---	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 <sup>3</sup>	$V_{GS}=10V, I_D=9A$	---	---	0.17	$\Omega$
$V_{GS(th)}$	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	$\mu A$
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=\pm 30V, V_{DS}=0V$	---	---	$\pm 100$	nA
$g_{fs}$	Forward Transconductance <sup>3</sup>	$V_{DS}=10V, I_D=10A$	---	15	---	S
$Q_g$	Total Gate Charge	$V_{DS}=100V, V_{GS}=10V, I_D=18A$	---	22	---	nC
$Q_{gs}$	Gate-Source Charge <sup>3,4</sup>		---	6.8	---	
$Q_{gd}$	Gate-Drain Charge <sup>3,4</sup>		---	7	---	
$T_{d(on)}$	Turn-On Delay Time <sup>3,4</sup>	$V_{DD}=100V, R_G=25\Omega, I_D=18A$	---	15	---	ns
$T_r$	Rise Time <sup>3,4</sup>		---	120	---	
$T_{d(off)}$	Turn-Off Delay Time <sup>3,4</sup>		---	135	---	
$T_f$	Fall Time <sup>3,4</sup>		---	98	---	
$C_{iss}$	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	---	1600	---	pF
$C_{oss}$	Output Capacitance		---	230	---	
$C_{rss}$	Reverse Transfer Capacitance		---	60	---	

### Diode Characteristics

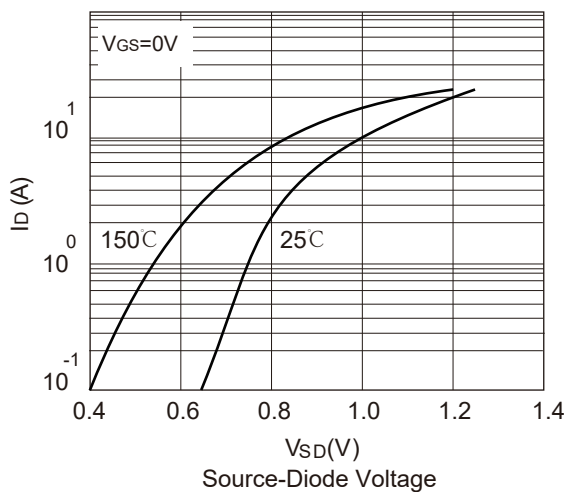
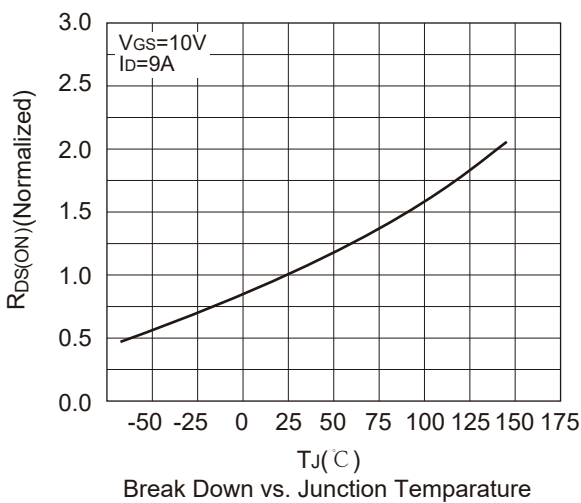
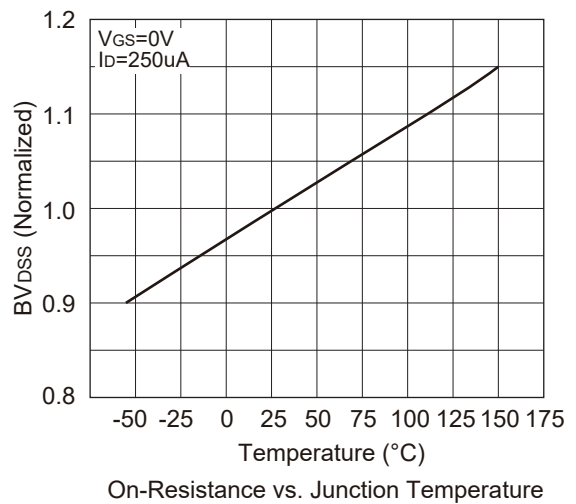
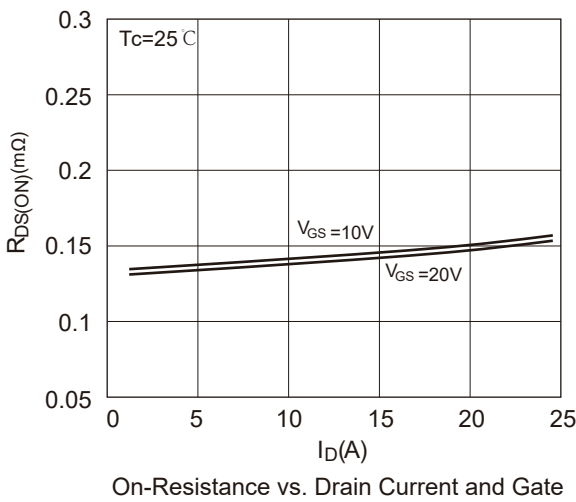
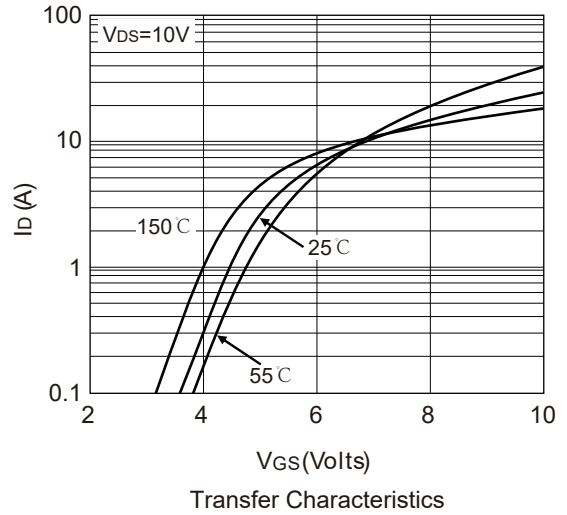
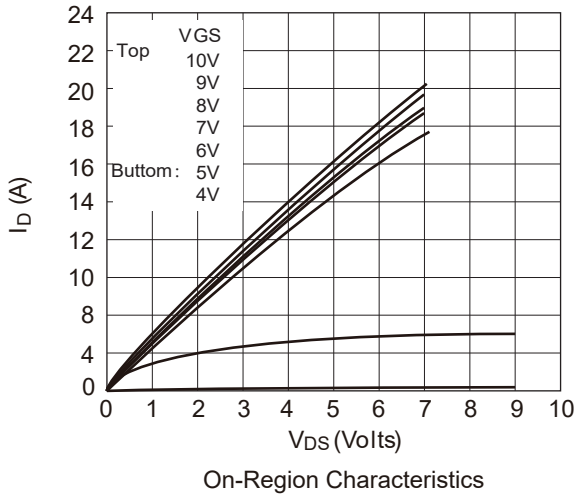
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$I_S$	Continuous Source Current	$V_G=V_D=0V, \text{Force Current}$	---	---	20	A
$I_{SM}$	Pulsed Source Current		---	---	60	A
$V_{SD}$	Diode Forward Voltage <sup>3</sup>	$V_{GS}=0V, I_S=9A, T_J=25^{\circ}\text{C}$	---	---	1.4	V

Note :

- 1.EAS condition:  $T_J=25^{\circ}\text{C}, V_{DS}=200V, V_G=10V, L=0.5mH, I_D=25A$
- 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 $\leq 2\%$

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Typical Characteristics



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