CMD80P06A/CMU80P06A

Cmos

-60V, 13mΩ typ., -80A P-Channe MOSFET

General Description

These P-Channel enhancement mode power field effect transistors use advanced trench technology and design to provide excellent RDS(ON) . This device is suitable for use as a load switch or in PWM applications.

Features

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

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
-60V	15mΩ	-80A

Applications

- DC-DC Converters
- Load Switches
- BLDC Motor driver

TO-252 / 251 Pin Configuration

TO-252   TO-251
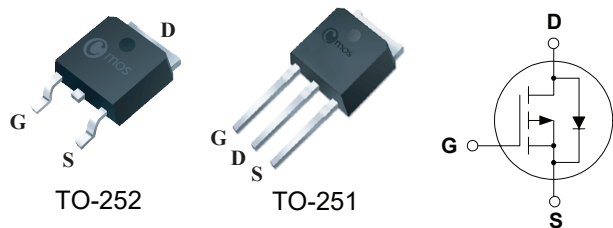
Type	Package	Marking
CMD80P06A	TO-252	CMD80P06A
CMU80P06A	TO-251	CMU80P06A

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Sou ce Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	-80	A
I_D@T_C=100℃	Continuous Drain Current	-56	A
I_{DM}	Pulsed Drain Current	-320	A
EAS	Single Pulse Avalanche Energy[1]	264	mJ
P_D@T_C=25℃	Total Power Dissipation	135	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	50	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.93	℃/W

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Electrical Characteristics (T$_J$=25℃ , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV$_{DSS}$	Drain-Source Breakdown Voltage	V$_{GS}$=0V , I$_D$=-250uA	-60	---	---	V
R$_{DS(ON)}$	Static Drain-Source On-Resistance	V$_{GS}$=-10V , I$_D$=-28A	---	13	15	mΩ
		V$_{GS}$=-4.5V, I$_D$=-20A	---	16	20	
V$_{GS(th)}$	Gate Threshold Voltage	V$_{GS}$=V$_{DS}$, I$_D$ =-250uA	-1.0	---	-3.0	V
I$_{DSS}$	Drain-Source Leakage Current	V$_{DS}$=-60V, V$_{GS}$=0V , T$_J$=25℃	---	---	-1	uA
I$_{GSS}$	Gate-Source Leakage Current	V$_{GS}$ = ±20V , V$_{DS}$=0V	---	---	±100	nA
gfs	Forward Transconductance	V$_{DS}$=-10V, I$_D$=-20A	---	24	---	S
R$_g$	Gate Resistance	V$_{DS}$=0V , V$_{GS}$=0V , f=1MHz	---	46	---	Ω
Q$_g$	Total Gate Charge	V$_{DD}$=-30V, I$_D$=-50A V$_{GS}$=-10V	---	110	---	nC
Q$_{gs}$	Gate-Source Charge		---	20	---	
Q$_{gd}$	Gate-Drain Charge		---	28	---	
T$_{d(on)}$	Turn-On Delay Time	V$_{DD}$=-30V, V$_{GS}$=-10V , R$_L$ =0.6Ω R$_G$ =6Ω , I$_D$=-50A	---	15	---	ns
T$_r$	Rise Time		---	70	---	
T$_{d(off)}$	Turn-Off Delay Time		---	175	---	
T$_f$	Fall Time		---	175	---	
C$_{iss}$	Input Capacitance	V$_{DS}$=-25V, V$_{GS}$=0V , f=1MHz	---	5800	---	pF
C$_{oss}$	Output Capacitance		---	290	---	
C$_{rss}$	Reverse Transfer Capacitance		---	240	---	

Diode Characteristics

| Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I$_S$	Continuous Source Current	V$_G$=V$_D$=0V , Force Current	---	---	-80	A
I$_{SM}$	Pulsed Source Current		---	---	-320	A
V$_{SD}$	Diode Forward Voltage	V$_{GS}$=0V , I$_F$=-28A	---	-0.89	-1.5	V

Note :

1.The EAS data shows Max. rating . The test condition is V$_{DD}$=-30V , V$_{GS}$=-10V , L=0.5mH , I$_{AS}$=-32.5A.

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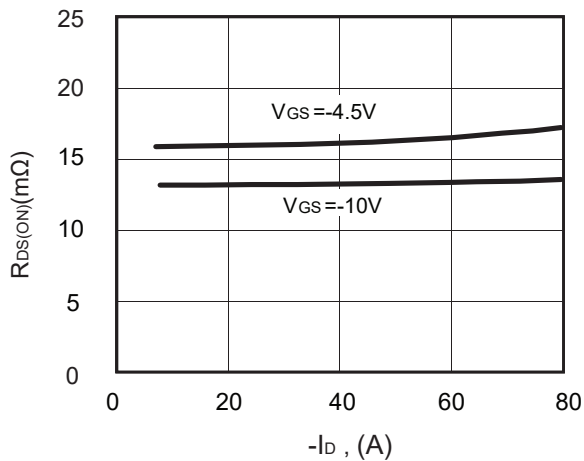
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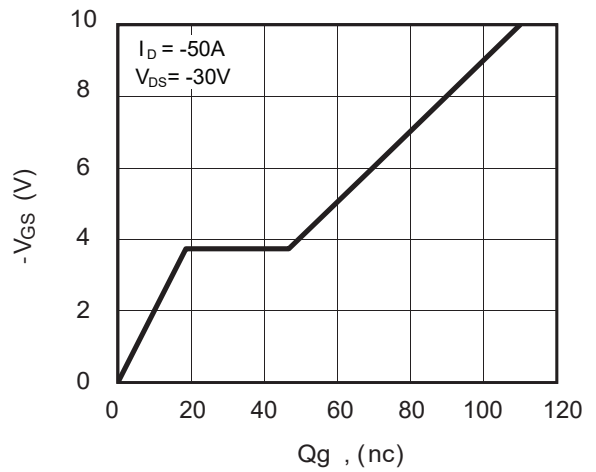
Typical Characteristics
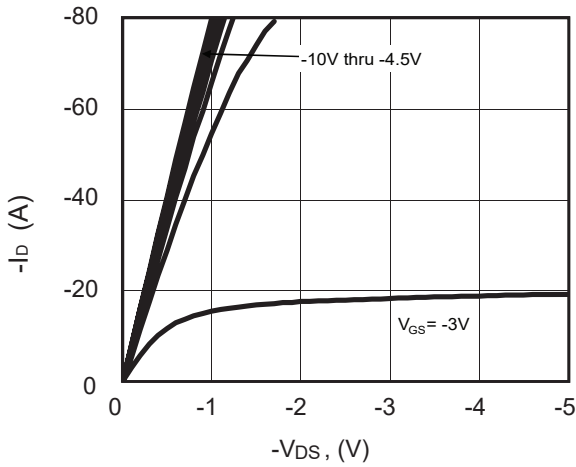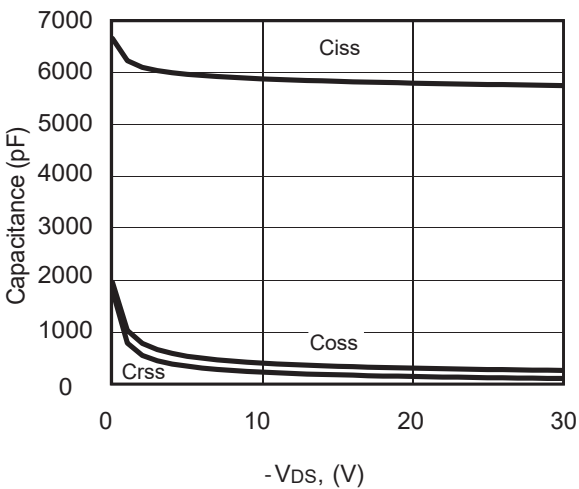
On-Region Characteristics
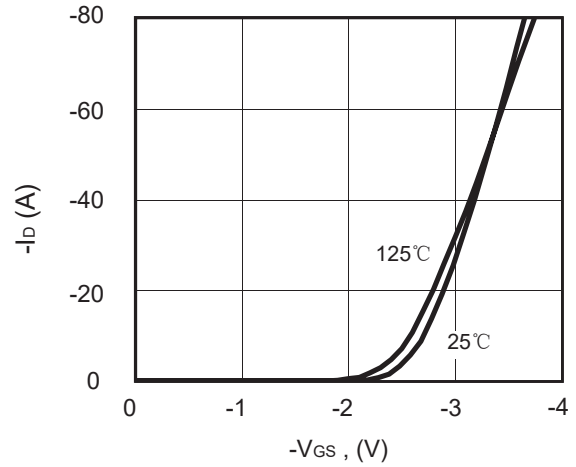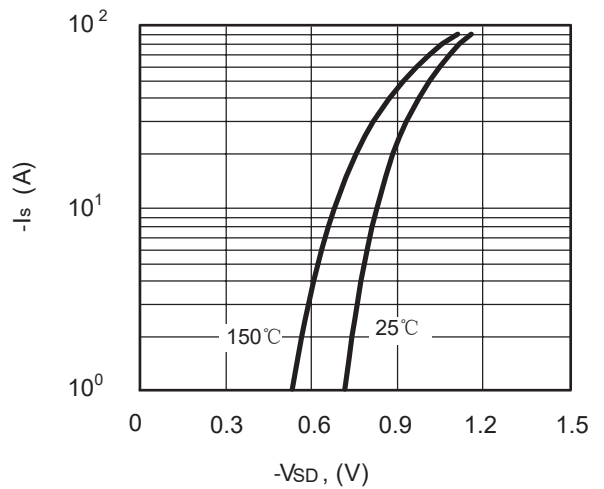
transfer characteristics

On-Resistance vs. Drain Current

Gate Charge Characteristics

Capacitance Characteristics

Body Diode Forward Voltage Variation with
Source Current and Temperature