

General Description

The 3803A is a N-channel Power MOSFET. It has specifically been designed to minimize input capacitance and gate charge. The device is therefore suitable in advanced high-efficiency switching applications.

Features

- Advanced Process Technology
- Ultra Low On-Resistance
- Dynamic dv/dt Rating
- 175°C Operating Temperature
- Fast Switching
- Fully Avalanche Rated
- Lead-Free

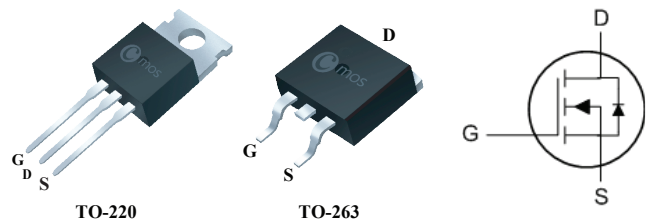
Product Summary

BVDSS	RDSON	ID
30V	2.7mΩ	180A

Applications

- LED power controller
- DC-DC & DC-AC converters
- High current, High speed switching
- Solenoid and relay drivers
- Motor control, Audio amplifiers

TO-220/263 Pin Configuration



Type	Package	Marking
CMP3803A	TO-220	CMP3803A
CMB3803A	TO-263	CMB3803A

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, $V_{GS} @ 10V$	180	A
$I_D@T_C=100^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	144	A
I_{DM}	Pulsed Drain Current	540	A
EAS	Single Pulse Avalanche Energy	322	mJ
$P_D@T_C=25^\circ C$	Power Dissipation	150	W
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 175	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Junction-to-Ambient (PCB mount)	---	62	$^\circ C/W$
$R_{\theta JC}$	Junction-to-Case	---	0.84	$^\circ C/W$

Electrical Characteristics ($T_J=25\text{ }^\circ\text{C}$, 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	$V_{GS}=10V, I_D=40A$	---	---	2.7	m Ω
		$V_{GS}=4.5V, I_D=20A$	---	---	6.5	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=30V, V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V, I_D=20A$	---	29	---	S
R_g	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1MHz$	---	2.7	---	Ω
Q_g	Total Gate Charge	$I_D=15A$	---	57	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=15V$	---	14	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	24	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=15V$	---	20	---	ns
T_r	Rise Time	$I_D=1A$	---	7	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=3.3\Omega$	---	125	---	
T_f	Fall Time	$V_{GS}=10V$	---	16	---	
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	---	6000	---	pF
C_{oss}	Output Capacitance		---	725	---	
C_{rss}	Reverse Transfer Capacitance		---	538	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	180	A
I_{SM}	Pulsed Source Current		---	---	540	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=45A, T_J=25^\circ C$	---	---	1.2	V

Note :

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