

General Description

The CMD607A uses advanced trench technology MOSFETs to provide excellent $R_{DS(ON)}$ and low gate charge.

The complementary MOSFETs may be used in H-bridge, Inverters and other applications.

Features

- 30V 20A $R_{DS(ON)} \leq 20m\Omega$ @ $V_{GS}=10V$
 $R_{DS(ON)} \leq 40m\Omega$ @ $V_{GS}=4.5V$
- -30V -12A $R_{DS(ON)} \leq 48m\Omega$ @ $V_{GS}=-10V$
 $R_{DS(ON)} \leq 65m\Omega$ @ $V_{GS}=-4.5V$
- High Density Cell Design For Ultra Low On Resistance

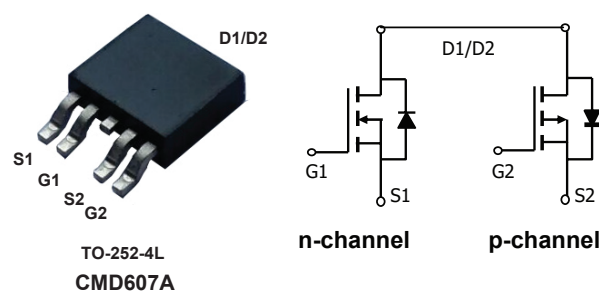
Product Summary

	BVDSS	$R_{DS(ON)}$	I_D
N-Channel	30V	20m Ω	20A
P-Channel	-30V	48m Ω	-12A

Applications

- Power Management
- Load Switch
- DC/DC Converter

TO-252-4L Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Max n-channel	Max p-channel	Units
V_{DS}	Drain-Source Voltage	30	-30	V
V_{GS}	Gate-Source Voltage	± 20	± 20	V
$I_D @ T_C = 25^\circ C$	Continuous Drain Current	20	-12	A
$I_D @ T_C = 70^\circ C$	Continuous Drain Current	15	-9.4	A
I_{DM}	Pulsed Drain Current	60	-36	A
$P_D @ T_C = 25^\circ C$	Power Dissipation	25	25	W
T_{STG}	Storage Temperature Range	-55 to 150	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	-55 to 150	$^\circ C$

Thermal Characteristics: n-channel

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Maximum Junction-to-Ambient (Steady-State)	---	50	$^\circ C/W$
$R_{\theta JC}$	Maximum Junction-to-Case (Steady-State)	---	6.5	$^\circ C/W$

Thermal Characteristics: p-channel

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Maximum Junction-to-Ambient (Steady-State)	---	50	$^{\circ}\text{C/W}$
$R_{\theta JC}$	Maximum Junction-to-Case (Steady-State)	---	4.2	$^{\circ}\text{C/W}$

N Channel Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=12A$	---	---	20	m Ω
		$V_{GS}=4.5V$, $I_D=10A$	---	---	40	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=24V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=12A$	---	10	---	S
Q_g	Total Gate Charge	$V_{DS}=15V$, $V_{GS}=10V$, $I_D=8A$	---	7.5	---	nC
Q_{gs}	Gate-Source Charge		---	1.3	---	
Q_{gd}	Gate-Drain Charge		---	1.7	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=15V$, $V_{GS}=10V$, $R_L=1.87\Omega$ $R_{GEN}=3\Omega$	---	4.5	---	ns
T_r	Rise Time		---	2.7	---	
$T_{d(off)}$	Turn-Off Delay Time		---	15	---	
T_f	Fall Time		---	3	---	
C_{iss}	Input Capacitance	$V_{DS}=15V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	650	---	pF
C_{oss}	Output Capacitance		---	65	---	
C_{rss}	Reverse Transfer Capacitance		---	40	---	

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		---	---	60	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=1A$, $T_J=25^{\circ}\text{C}$	---	---	1	V

P Channel Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-30	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =-10V, I _D =-10A	---	---	48	mΩ
		V _{GS} =-4.5V, I _D =-8A	---	---	65	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =-250μA	-1	---	-3	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-24V, V _{GS} =0V	---	---	-1	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =-5V, I _D =-10A	---	10	---	S
Q _g	Total Gate Charge	V _{DS} =-15V, V _{GS} =-10V, I _D =-12A	---	14	---	nC
Q _{gs}	Gate-Source Charge		---	2.5	---	
Q _{gd}	Gate-Drain Charge		---	3.2	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =-15V, V _{GS} =-10V, R _L =1.25Ω R _{GEN} =3Ω	---	8	---	ns
T _r	Rise Time		---	6	---	
T _{d(off)}	Turn-Off Delay Time		---	18	---	
T _f	Fall Time		---	5	---	
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V, f=1MHz	---	1300	---	pF
C _{oss}	Output Capacitance		---	140	---	
C _{rss}	Reverse Transfer Capacitance		---	95	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V, Force Current	---	---	-12	A
I _{SM}	Pulsed Source Current		---	---	-36	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _F =-1A, T _J =25°C	---	---	-1	V

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