

CMP60R078/CMB60R078/CMI60R078/CMF60R078

N-Channel Super Junction Power MOSFET

General Description

60R078 is power MOSFET using Cmos's advanced super junction technology that can realize very low on-resistance and gate charge. It has low gate charge and ultra-fast body diode, so turn off action is improved. 60R078 provides excellent performances, such as efficiency and EMI, in soft switching applications.

Features

- Low On-Resistance
- 100% Avalanche Tested
- RoHS Compliant

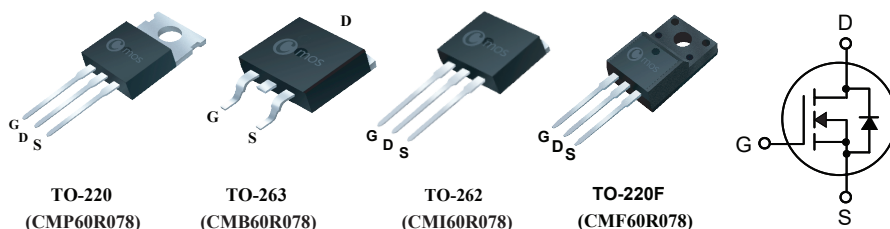
Product Summary

BVDSS	RDSON	ID
600V	70mΩ	50A

Applications

- DC-DC Converters
- Adapter
- PFC Power Supply Stages
- Switching Applications

TO-220/263/262/220F Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	220/263/262	220F	Units
V_{DS}	Drain-Source Voltage	600		V
V_{GS}	Gate-Source Voltage	±30		V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	50	50*	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	31.6	31.6*	A
I_{DM}	Pulsed Drain Current	200	200*	A
EAS	Single Pulse Avalanche Energy (Note 1)	600		mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	250	40	W
T_{STG}	Storage Temperature Range	-55 to 150		°C
T_J	Operating Junction Temperature Range	150		°C

* Drain current limited by maximum junction temperature.

Thermal Data

Symbol	Parameter	220/263/262	220F	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	62.5	62.5	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	0.5	3.13	°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	$V_{GS}=0V$, $I_D=250\mu A$	600	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=15A$	---	56	70	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	3	---	5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=600V$, $V_{GS}=0V$	---	---	13	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=15A$	---	27	---	S
Q_g	Total Gate Charge	$I_D=45A$	---	88	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=480V$	---	28	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	35	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=300V$	---	33	---	ns
T_r	Rise Time	$V_{GS}=10V$	---	160	---	
$T_{d(off)}$	Turn-Off Delay Time	$I_D=50A$	---	76	---	
T_f	Fall Time	$R_G=2\Omega$	---	5	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1MHz$	---	3600	---	pF
C_{oss}	Output Capacitance		---	3700	---	
C_{rss}	Reverse Transfer Capacitance		---	160	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	50	A
I_{SM}	Pulsed Source Current		---	---	200	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=30A$	---	0.88	1.4	V
t_{rr}	Reverse Recovery Time	$V_{DD}=100V$, $I_S=50A$	---	280	---	ns
Q_{rr}	Reverse Recovery Charge	$di_F/dt=100A/\mu s$	---	2.69	---	μC

Notes:

1.The EAS data shows Max. rating . The test condition is $V_{DD}=50V$, $V_{GS}=10V$, $L=5mH$, $I_D=15.5A$

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

