

CMD65R290Q/CMU65R290Q

650V, 0.27Ω typ., 13.8A N-Channel Super Junction Power MOSFET

General Description

The 65R290Q is power MOSFET using CMOS's advanced super junction technology that can realize very low on resistance and gate charge. It will provide much high efficiency by using optimized charge coupling technology. These user friendly devices give an advantage of Low EMI to designers as well as low switching loss.

Features

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

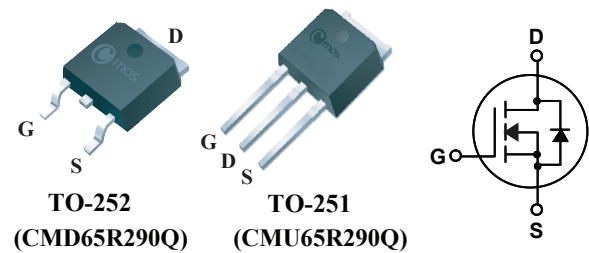
Product Summary

BVDSS	R _{DS(on)} max.	ID
650V	300mΩ	13.8A

Applications

- Adapter
- PFC Power Supply Stages
- Switching Applications

TO-252/251 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	650	V
V _{GS}	Gate-Source Voltage	±30	V
I _D @T _C =25°C	Continuous Drain Current	13.8	A
I _D @T _C =100°C	Continuous Drain Current	8.7	A
I _{DM}	Pulsed Drain Current	55.2	A
EAS	Single Pulse Avalanche Energy ¹	375	mJ
P _D @T _C =25°C	Total Power Dissipation	85	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 _{θJA}	Thermal Resistance Junction-ambient	---	62.5	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	1.47	°C/W

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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 =250uA	650	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =6.5A	---	270	300	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	2	---	4	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =600V, V _{GS} =0V	---	---	1	μA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±30V, V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =6.5A	---	10.5	---	S
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz	---	7	---	Ω
Q _g	Total Gate Charge	I _D =13.8A	---	31	---	nC
Q _{gs}	Gate-Source Charge	V _{DS} =480V	---	8	---	
Q _{gd}	Gate-Drain Charge	V _{GS} =10V	---	11	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =300V	---	20	---	ns
T _r	Rise Time	V _{GS} =10V	---	43	---	
T _{d(off)}	Turn-Off Delay Time	R _G =25Ω	---	91	---	
T _f	Fall Time	I _D =13.8A	---	42	---	
C _{iss}	Input Capacitance	V _{DS} =45V, V _{GS} =0V, f=1MHz	---	940	---	pF
C _{oss}	Output Capacitance		---	580	---	
C _{rss}	Reverse Transfer Capacitance		---	10	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V, Force Current	---	---	13.8	A
I _{SM}	Pulsed Source Current		---	---	55.2	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =12A	---	0.87	1.4	V
t _{rr}	Reverse Recovery Time	V _{DD} =100V, I _S =13.8A	---	364	---	ns
Q _{rr}	Reverse Recovery Charge	di/dt=100A/μs	---	4.7	---	μC

Note :

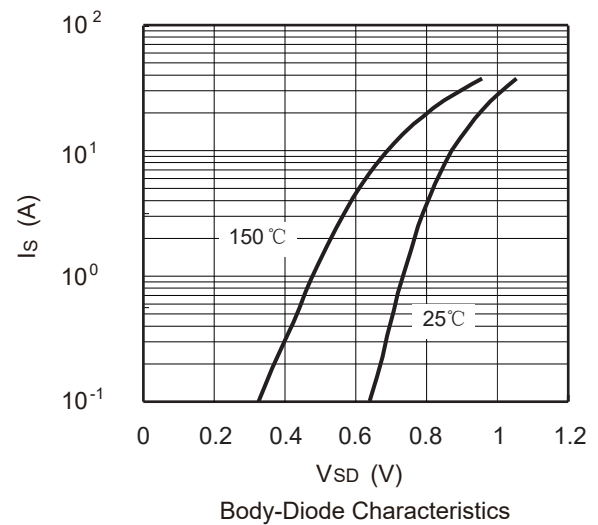
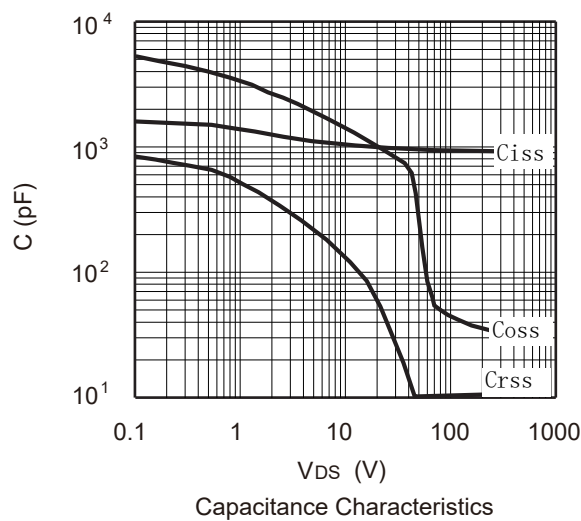
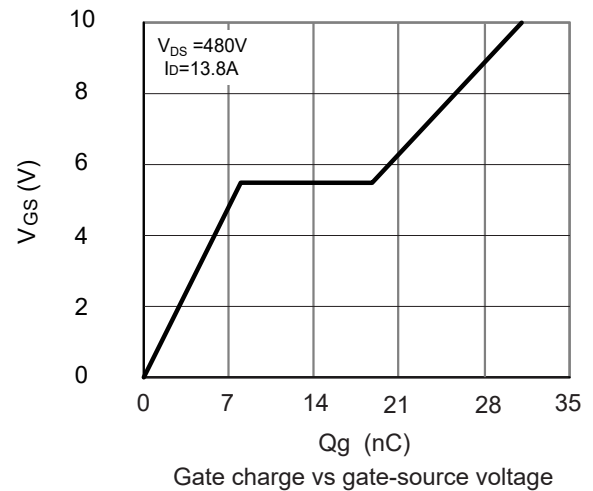
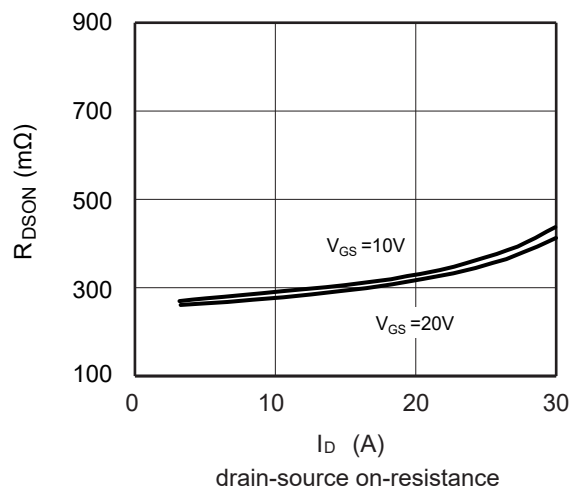
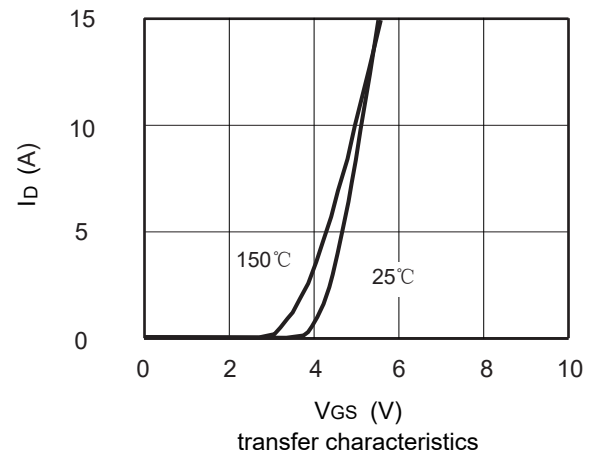
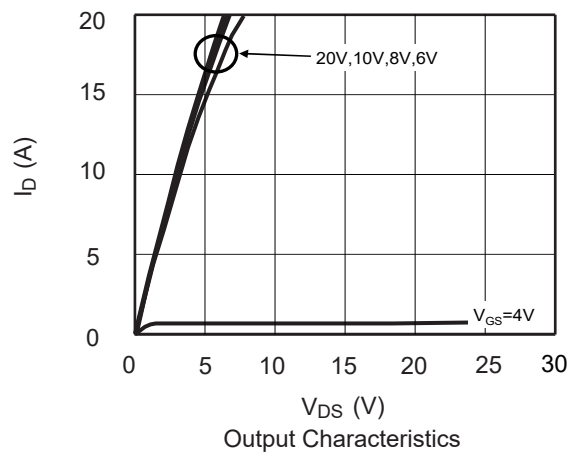
1.The EAS data shows Max. rating . The test condition is V_{DD}=100V, V_{GS}=10V, L=30mH, I_{AS}=5A.

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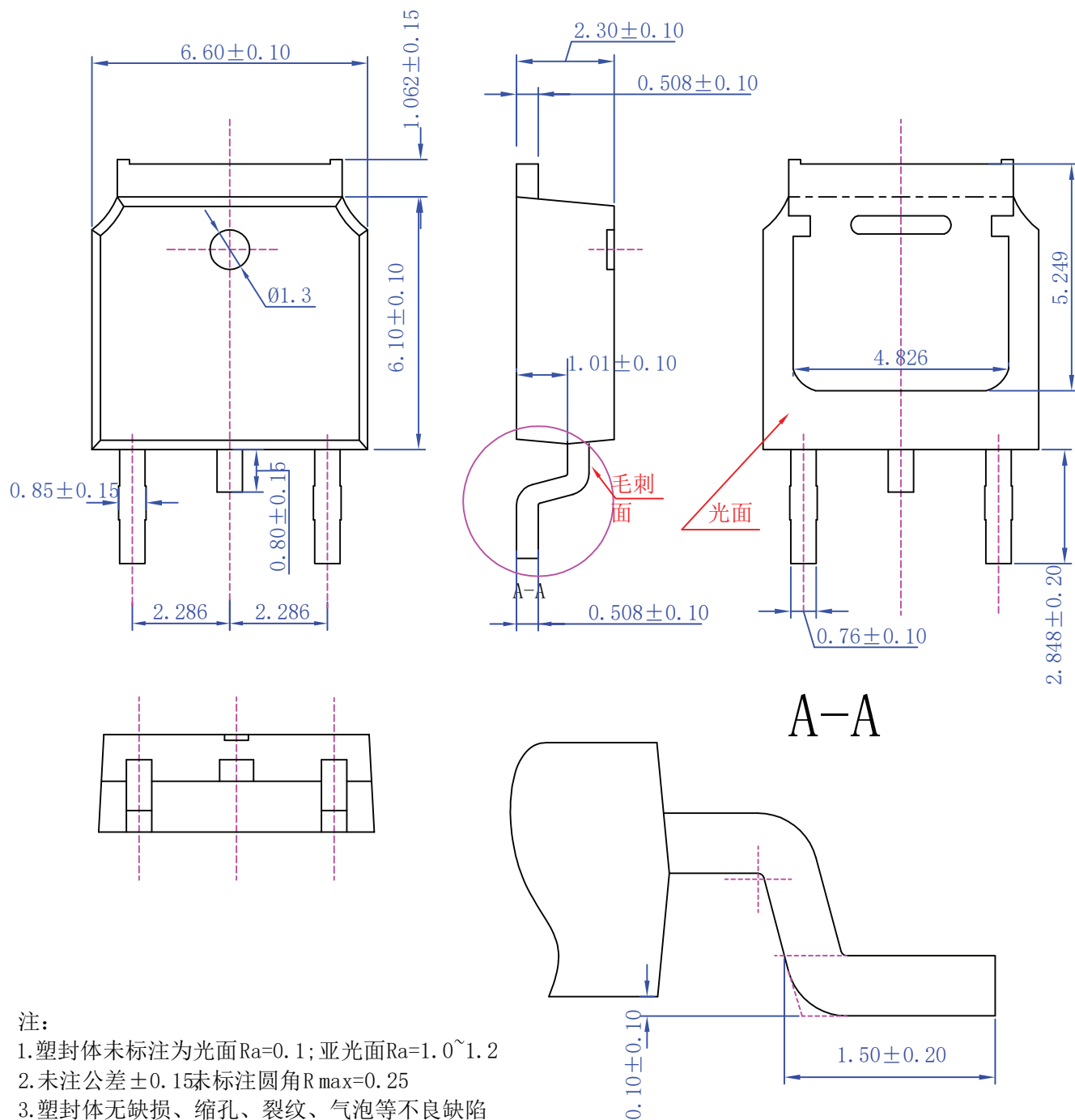
Typical Characteristics



Package Dimension

TO-252

Unit :mm



Package Dimension

TO-251A

Unit :mm

