

CMD65R290/CMU65R290



650V, 0.27Ω typ., 13A N-Channel Super Junction Power MOSFET

General Description

The 65R290 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

- Fast switching
- 100% avalanche tested
- RoHS Compliant

Product Summary

BV _{DSS}	R _{DS(on)} max.	I _D
650V	0.3Ω	13A

Applications

- Charger
- Adaptor
- Power Supply

TO-252/TO-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 (Note 1)	13	A
I _D @T _C =100°C	Continuous Drain Current	8	A
I _{DM}	Pulsed Drain Current (Note 2)	52	A
EAS	Single Pulse Avalanche Energy (Note 3)	453	mJ
P _D @T _C =25°C	Total Power Dissipation	132	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Rating	Unit
R _{θJA}	Thermal Resistance Junction-ambient	127	°C/W
R _{θJC}	Thermal Resistance Junction-case	0.95	°C/W

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 =6A	---	0.27	0.3	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	2	---	4	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =650V , V _{GS} =0V , T _J =25 °C	---	---	1	uA
		V _{DS} =650V , V _{GS} =0V , T _J = 150 °C	---	5	---	
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±30V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =10V , I _D =6A	---	7	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	9	---	Ω
Q _g	Total Gate Charge	I _D =7.5A	---	24	---	nC
Q _{gs}	Gate-Source Charge	V _{DS} = 480V	---	5	---	
Q _{gd}	Gate-Drain Charge	V _{GS} = 10V	---	10	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =400V	---	14	---	ns
T _r	Rise Time	V _{GS} =10V	---	24	---	
T _{d(off)}	Turn-Off Delay Time	I _D =7.5A	---	97	---	
T _f	Fall Time	R _G =25Ω	---	22	---	
C _{iss}	Input Capacitance	V _{DS} =100V , V _{GS} =0V , f=1MHz	---	660	---	pF
C _{oss}	Output Capacitance		---	40	---	
C _{rss}	Reverse Transfer Capacitance		---	2.3	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	13	A
I _{SM}	Pulsed Source Current		---	---	52	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =12A , T _J =25 °C	---	0.88	1.2	V
t _{rr}	Reverse Recovery Time	di/dt = 100A/μs	---	250	---	ns
Q _{rr}	Reverse Recovery Charge	V _{DS} =100V , I _{SD} =7.5A	---	2.94	---	μC

Notes:

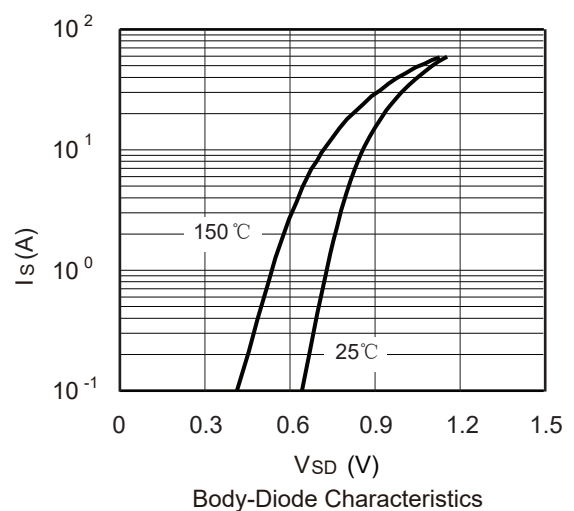
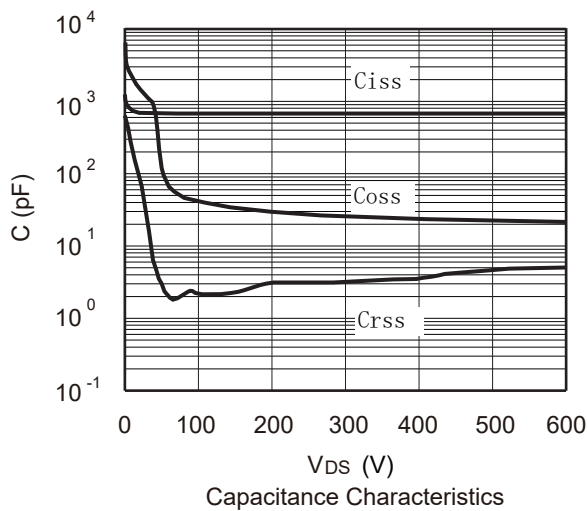
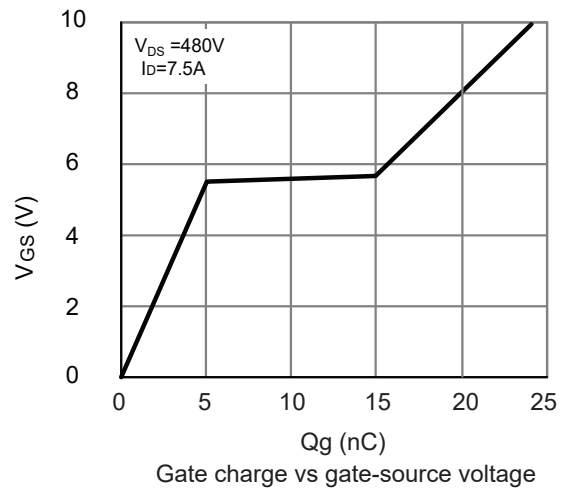
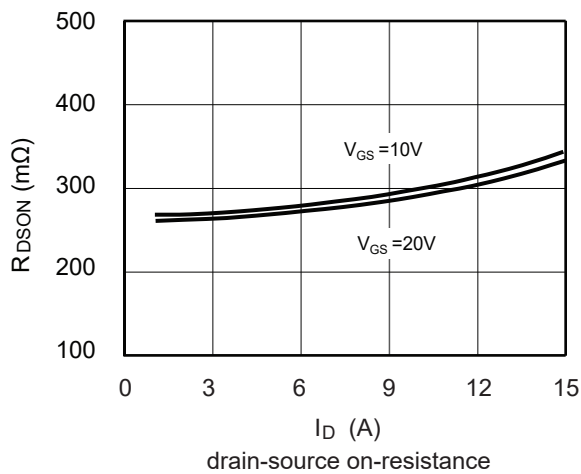
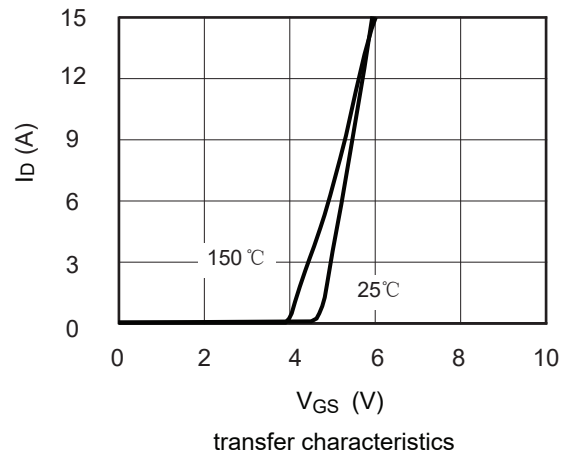
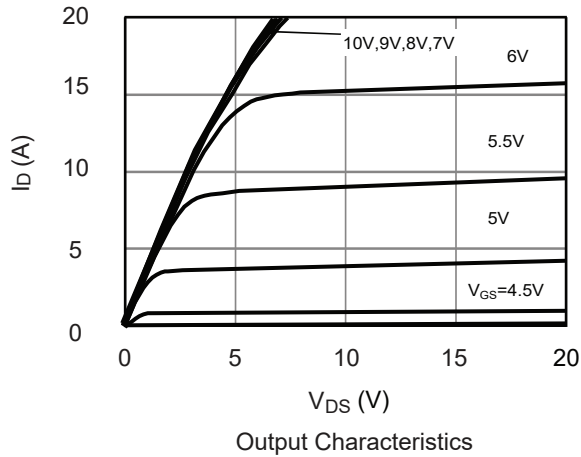
- 1.Limited by T_J,max. Maximum Duty Cycle D = 0.50
- 2.Pulse width tp limited by T_J,max.
- 3.The EAS data shows Max. rating .The test condition is V_{DS}=80V , V_{GS}=10V , L=30mH , I_{AS}=5.5A.

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.Please refer to the latest version of specification.

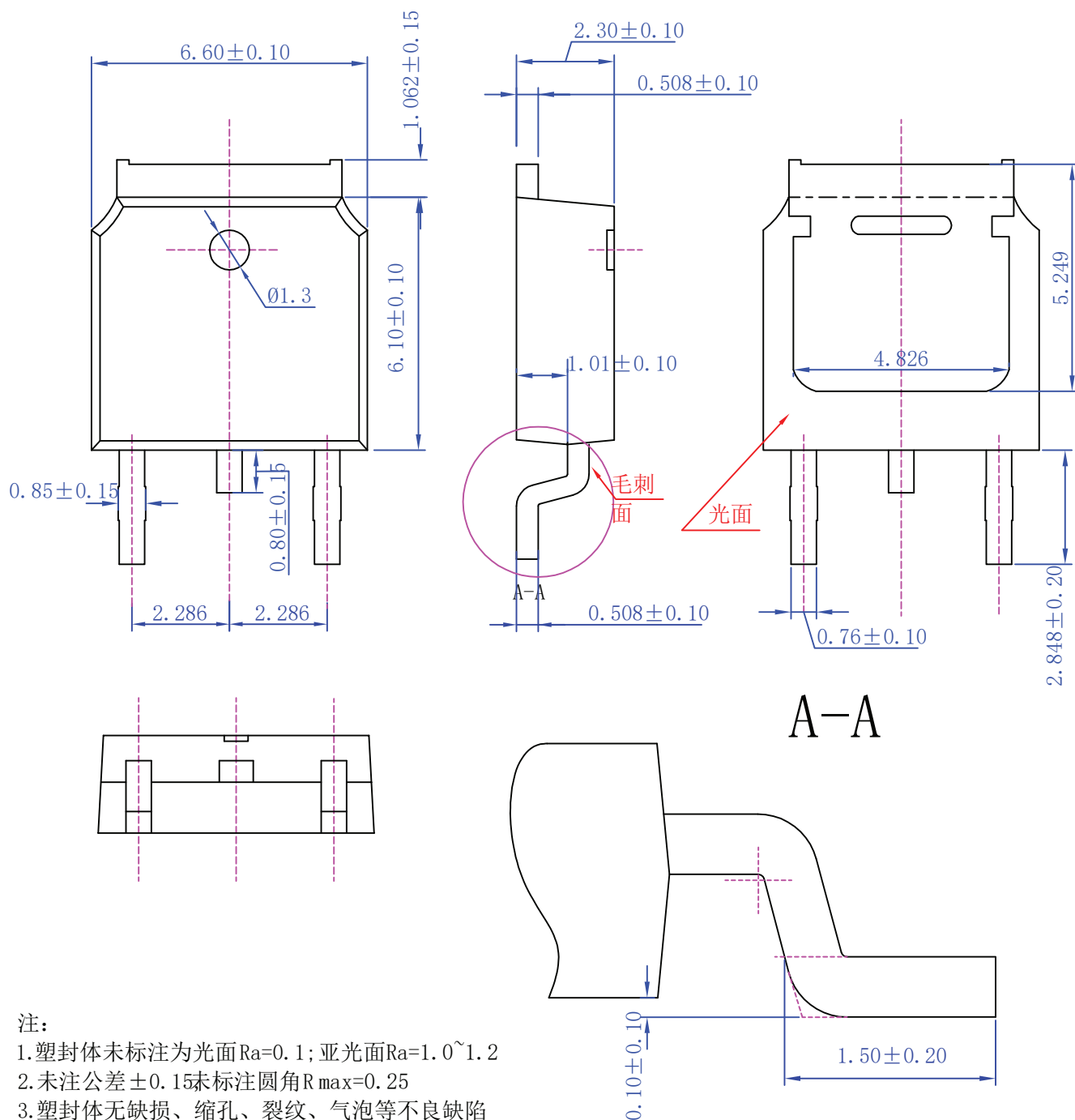
Typical Characteristics



Package Dimension

TO-252

Unit :mm



Package Dimension

TO-251A

Unit :mm

