CMD80R900D/CMU80R900D

800V, 0.81Ω typ., 6A N-Channel Super Junction Power MOSFET

General Description

The 80R900D 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.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
800V	900mΩ	6A

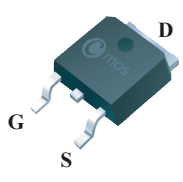
Applications

- Adapter
- Switching Applications
- PFC Power Supply Stages

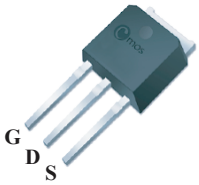
Features

- Multi-layer Epitaxial Chip Technology
- Low On-Resistance
- Excellent ESD robustness
- 100% Avalanche Tested
- RoHS Compliant

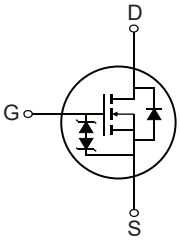
TO-252/251 Pin Configuration



TO-252
(CMD80R900D)



TO-251
(CMU80R900D)



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	800	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	6	A
I_D@T_C=100℃	Continuous Drain Current	3.8	A
I_{DM}	Pulsed Drain Current	24	A
EAS	Single Pulse Avalanche Energy[1]	183	mJ
P_D@T_C=25℃	Total Power Dissipation	65	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62.5	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.92	℃/W

Electrical Characteristics(T_J=25℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	800	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=4A	---	810	900	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	2.5	---	4.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=800V , V_{GS} =0V	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS} =±20V , V_{DS}=0V	---	---	±10	μA
gfs	Forward Transconductance	V_{DS}=30V , I_D=4A	---	4.5	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	25	---	Ω
Q_g	Total Gate Charge	I_D=6A V_{DS}=640V V_{GS}=10V	---	13	---	nC
Q_{gs}	Gate-Source Charge		---	4.3	---	
Q_{gd}	Gate-Drain Charge		---	5.3	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS} =400V V_{GS} =10V R_G =25Ω I_D=6A	---	18	---	ns
T_r	Rise Time		---	30	---	
$T_{d(off)}$	Turn-Off Delay Time		---	85	---	
T_f	Fall Time		---	20	---	
C_{iss}	Input Capacitance	V_{DS}=100V , V_{GS}=0V , f=1MHz	---	500	---	pF
C_{oss}	Output Capacitance		---	21	---	
C_{rss}	Reverse Transfer Capacitance		---	0.8	---	

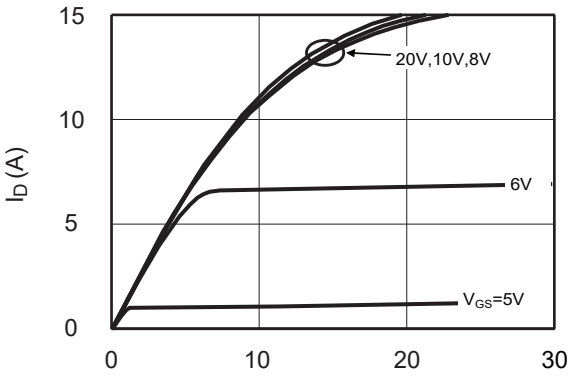
Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	6	A
I_{SM}	Pulsed Source Current		---	---	24	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=8A ,T_J=25℃	---	0.90	1.4	V
t_{rr}	Reverse Recovery Time	di/dt = 100A/μs V_{DD}=100V , I_{SD}=6A	---	375	---	ns
Q_{rr}	Reverse Recovery Charge		---	2.7	---	μC

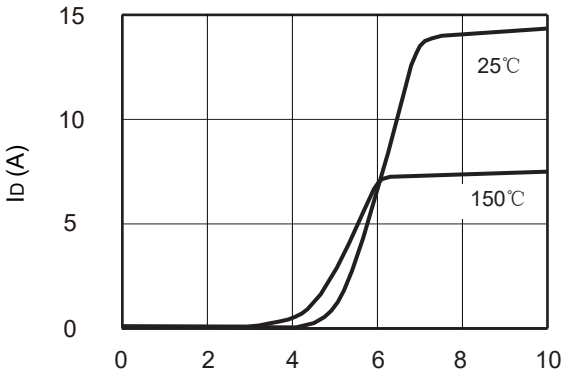
Note :

1.The EAS data shows Max. rating . The test condition is V_{DD}=100V , V_{GS}=10V , L=30mH , I_{AS}=3.5A.

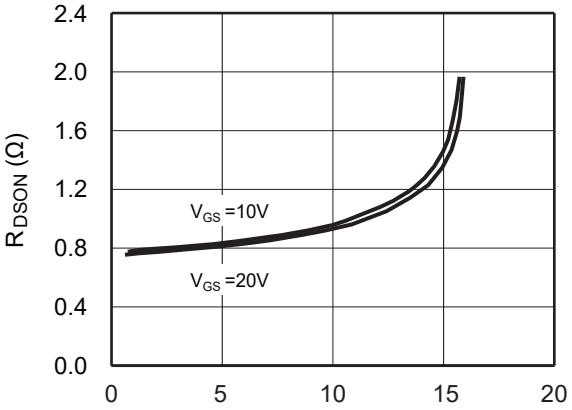
Typical Characteristics



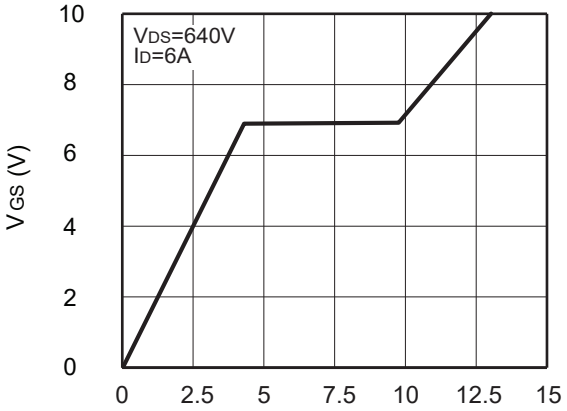
Output Characteristics



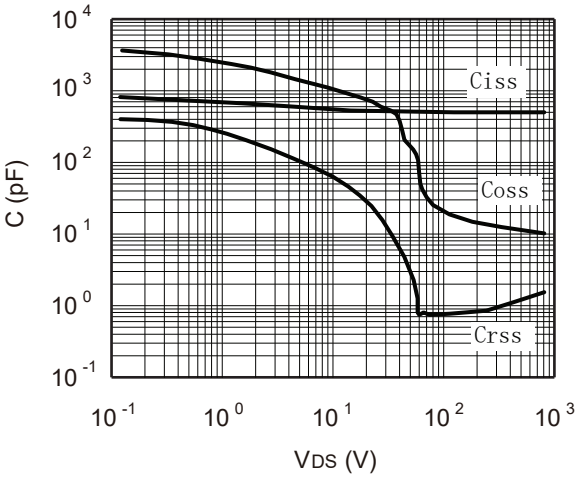
transfer characteristics



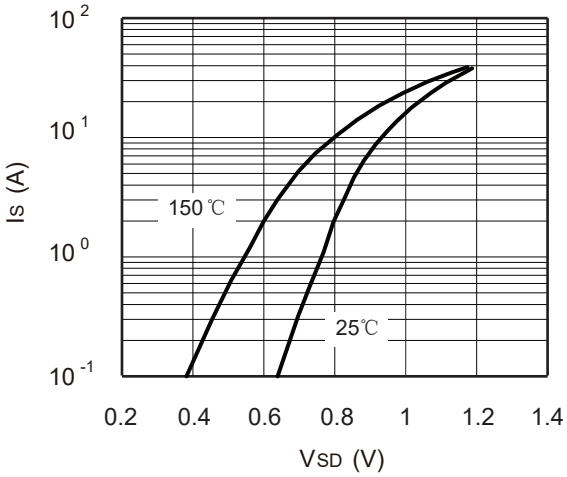
On-Resistance vs. Drain Current



Gate charge vs gate-source voltage

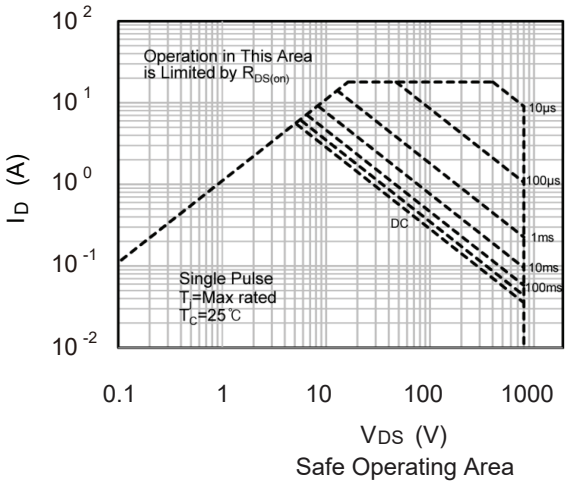


Capacitance Characteristics

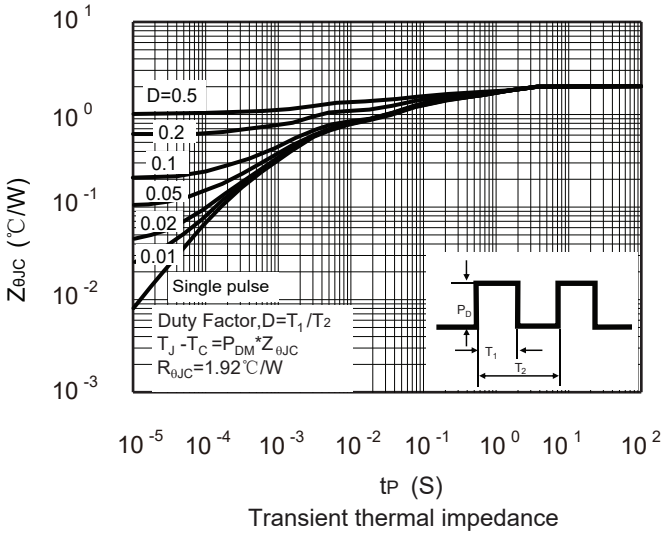


Body-Diode Characteristics

Typical Characteristics



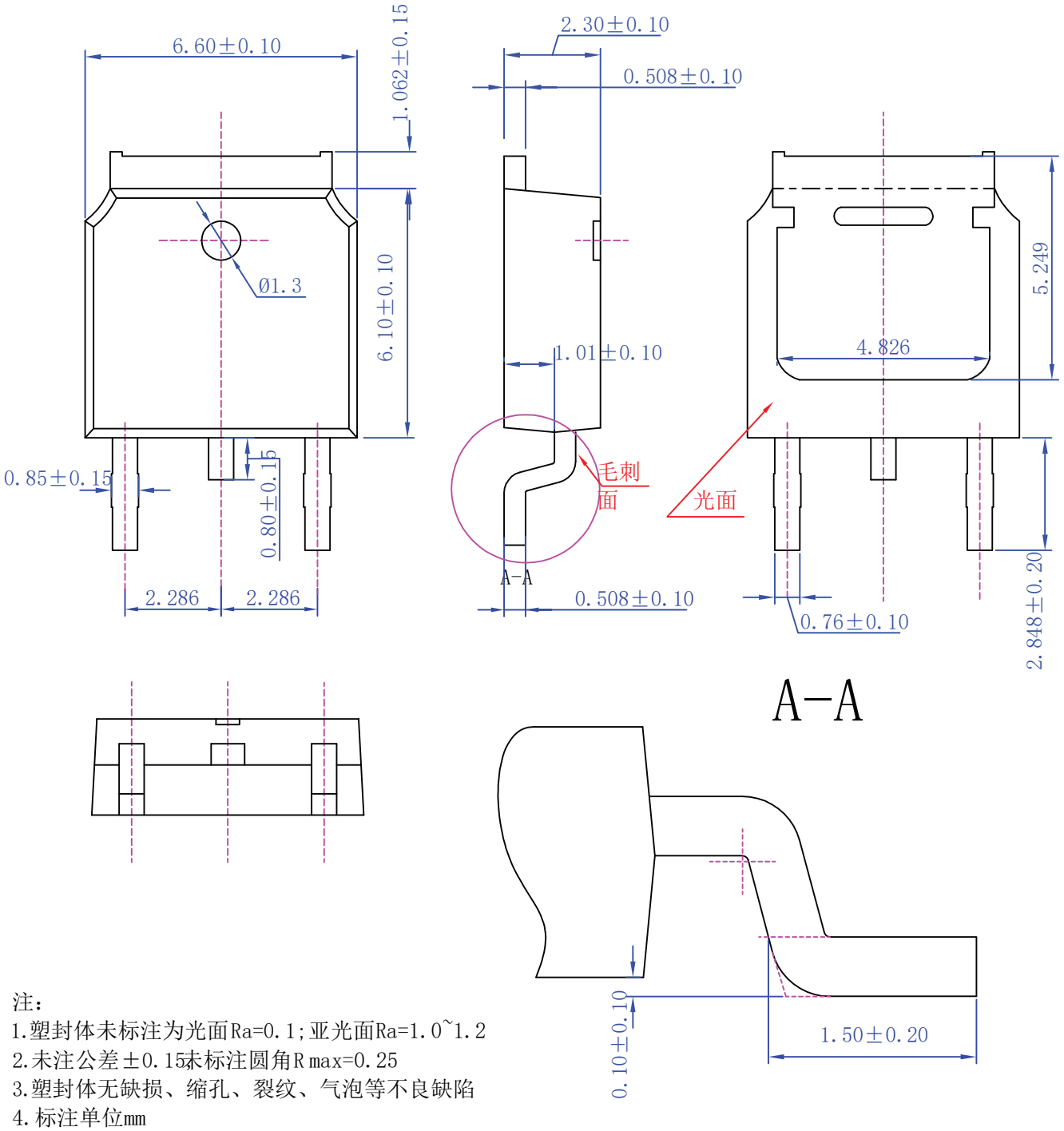
Safe Operating Area



Transient thermal impedance

Package Dimension

TO-252 Unit :mm



注：
1.塑封体未标注为光面Ra=0.1;亚光面Ra=1.0~1.2
2.未注公差±0.15未标注圆角R max=0.25
3.塑封体无缺损、缩孔、裂纹、气泡等不良缺陷
4.标注单位mm
5.顶针孔不允许凸出塑封体表面

Package Dimension

TO-251A Unit :mm