

CMD70R380/CMU70R380

700V, 0.35Ω typ., 11A N-Channel Super Junction Power MOSFET

General Description

The 70R380 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

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

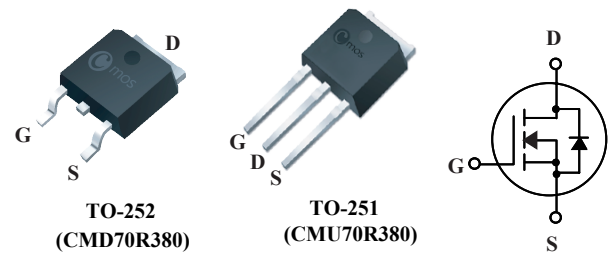
Product Summary

BVDSS	R _{DS(on)} max.	ID
700V	0.38Ω	11A

Applications

- Flyback for SMPS
- Charger, PD Adapter, TV, lighting

TO-252/251 Pin Configuration



Absolute Maximum Ratings

T_C = 25°C unless otherwise noted

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	700	V
V _{GS}	Gate-Source Voltage	±30	V
I _D @T _C =25°C	Continuous Drain Current	11	A
I _D @T _C =100°C	Continuous Drain Current	8	A
I _{DM}	Pulsed Drain Current	44	A
EAS	Single Pulse Avalanche Energy (Note 1)	360	mJ
P _D @T _C =25°C	Total Power Dissipation	128	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient	---	93	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	0.98	°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	700	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =6.5A	---	0.35	0.38	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} =700V , V _{GS} =0V	---	---	1	uA
		V _{DS} =700V , T _C =150°C	---	10	---	
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±30V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =20V , I _D =6.5A	---	6.3	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	8	---	Ω
Q _g	Total Gate Charge	I _D =6A	---	26	---	nC
Q _{gs}	Gate-Source Charge	V _{DS} =480V	---	4	---	
Q _{gd}	Gate-Drain Charge	V _{GS} = 10V	---	14	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =400V V _{GS} =10V I _D =6A R _G =27Ω	---	20	---	ns
T _r	Rise Time		---	26	---	
T _{d(off)}	Turn-Off Delay Time		---	105	---	
T _f	Fall Time		---	32	---	
C _{iss}	Input Capacitance	V _{DS} =100V , V _{GS} =0V , f=1MHz	---	660	---	pF
C _{oss}	Output Capacitance		---	40	---	
C _{rss}	Reverse Transfer Capacitance		---	2.2	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _{GS} =V _{DS} =0V , Force Current	---	---	11	A
I _{SM}	Pulsed Source Current		---	---	44	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _{SD} =11A , T _J =25°C	---	---	1.3	V
t _{rr}	Reverse Recovery Time	V _{DS} =100V	---	210	---	ns
Q _{rr}	Reverse Recovery Charge	I _F =6A , di/dt=100A/μs	---	2.05	---	uC

Note :

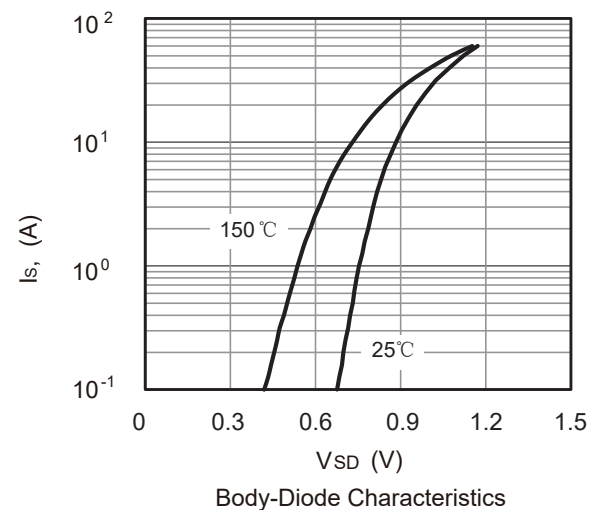
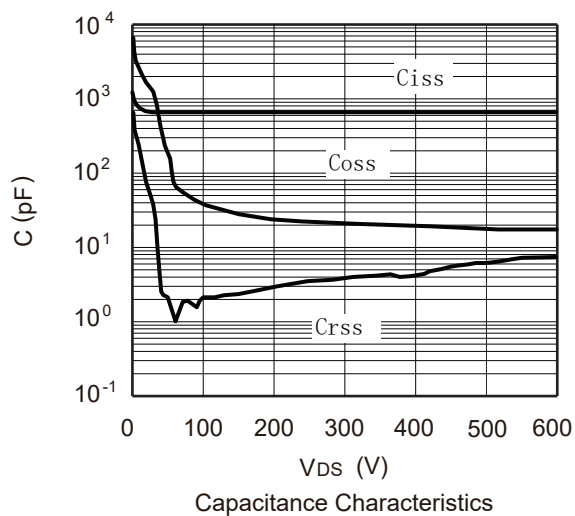
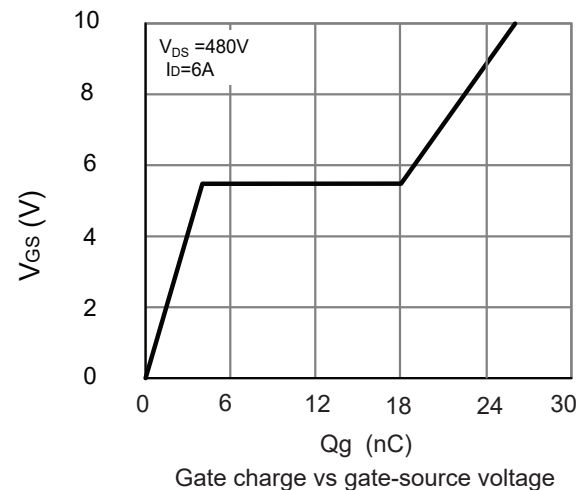
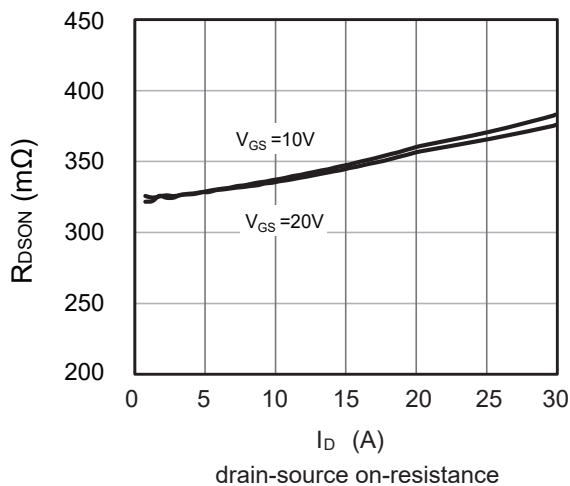
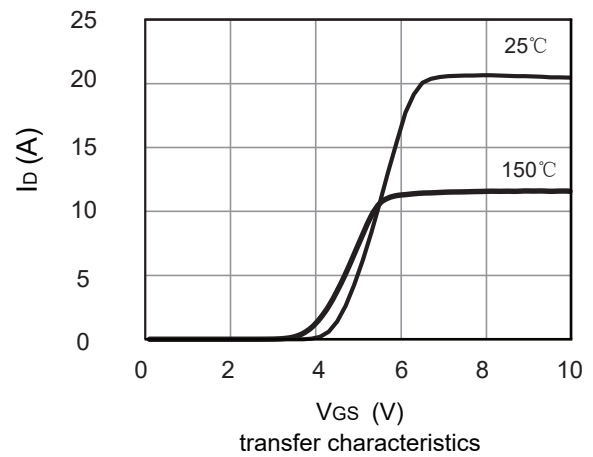
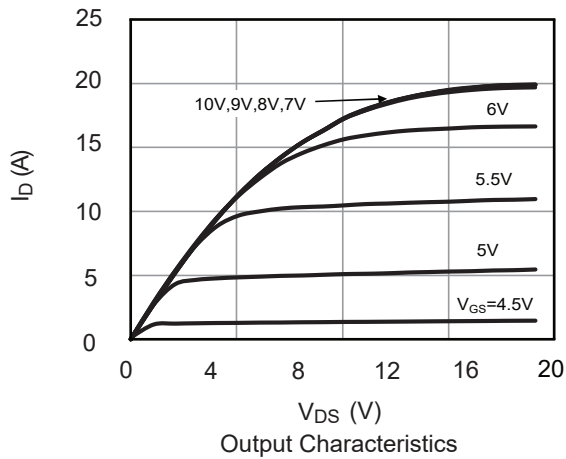
1.The EAS data shows Max. rating . The test condition is V_{DD}=80V , V_{GS}=10V , L=20mH , I_{AS} =6A.

This product has been designed and qualified for the consumer market.

Cmos assumes no liability for customers' product design or applications.

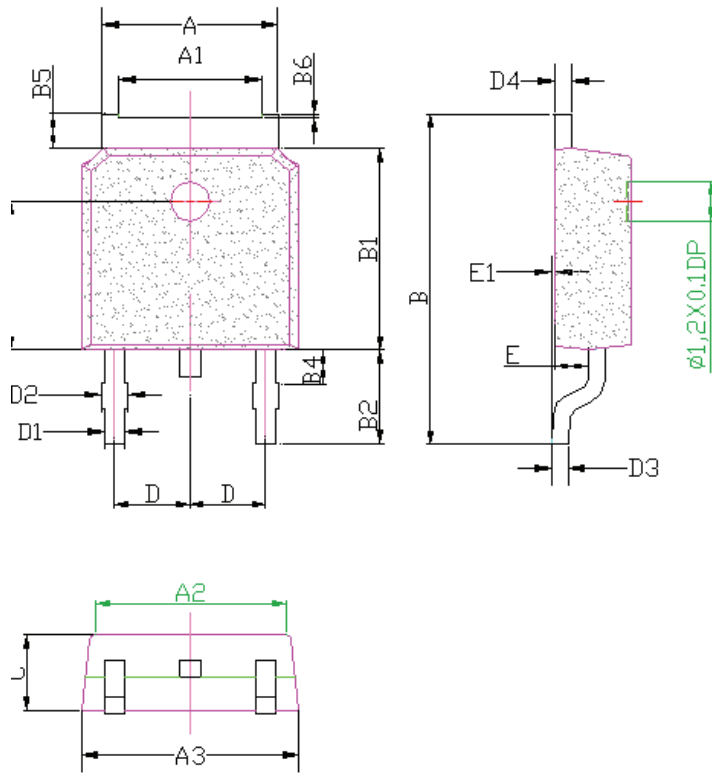
Cmos reserves the right to improve product design , functions and reliability without notice. Please refer to the latest version of specification.

Typical Characteristics



Physical Dimensions

TO-252 Package Outline Drawing

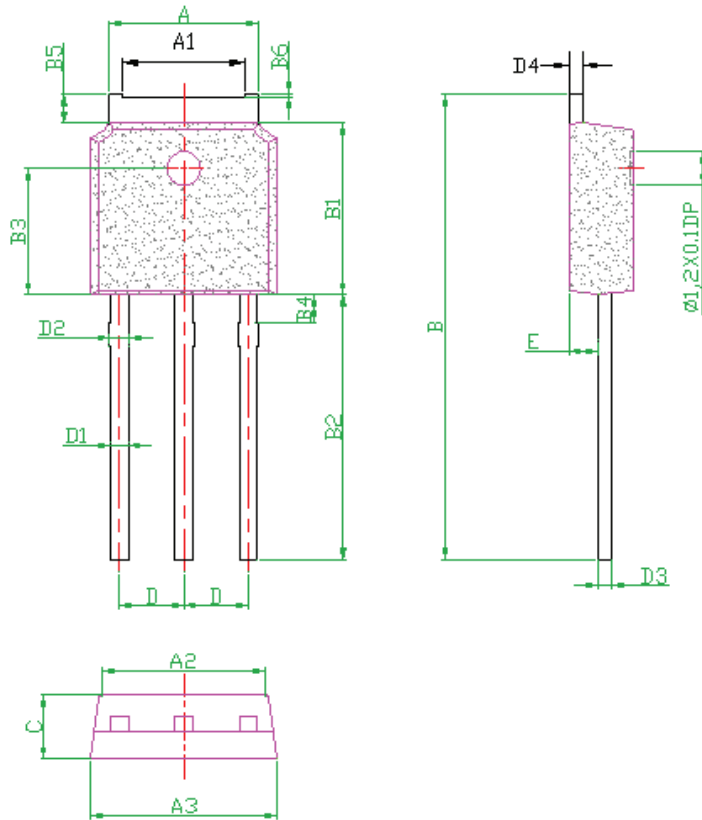


DIM	MILLIMETERS
A	5.33±0.2
A1	4.33±0.2
A2	5.80±0.1
A3	6.6±0.2
B	10±0.5
B1	6.1±0.3
B2	2.85±0.5
B3	4.5±0.15
B4	1.0±0.1
B5	1.05±0.1
B6	0.1±0.05
C	2.3±0.15
D	2.286±0.05
D1	0.60±0.1
D2	0.72±0.12
D3	0.5±0.08
D4	0.5±0.08
E	1.01±0.15
E1	0.1±0.05
DIA	∅1.2 (deep 0.1)

Unit :mm

Physical Dimensions

TO-251 Package Outline Drawing



DIM	MILLIMETERS
A	5.33 ± 0.2
A1	4.33 ± 0.2
A2	5.80 ± 0.1
A3	6.6 ± 0.2
B	15.35 ± 0.5
B1	6.1 ± 0.3
B2	8.2 ± 0.5
B3	4.5 ± 0.15
B4	1.0 ± 0.1
B5	1.05 ± 0.1
B6	0.1 ± 0.05
C	2.3 ± 0.2
D	2.286 ± 0.05
D1	0.60 ± 0.1
D2	0.72 ± 0.12
D3	0.5 ± 0.08
D4	0.5 ± 0.08
E	1.01 ± 0.2
DIA	$\varnothing 1.2$ (deep 0.1)

Unit :mm