

CMH65R086SD/CMA65R086SD

650V, 68mΩ typ., 55A N-Channel Super Junction Power MOSFET

General Description

The 65R086SD is power MOSFET using Cmos's advanced super junction technology. The resulting devices provide all benefits of a fast switching super junction MOSFET while offering an extremely fast and robust body diode. This combination of extremely low switching, commutation and conduction losses together with highest robustness make especially resonant switching applications more reliable, more efficient and lighter.

Features

- Ultra-fast body diode
- 100% avalanche tested
- RoHS Compliant
- Multi-layer Epitaxial Chip Technology

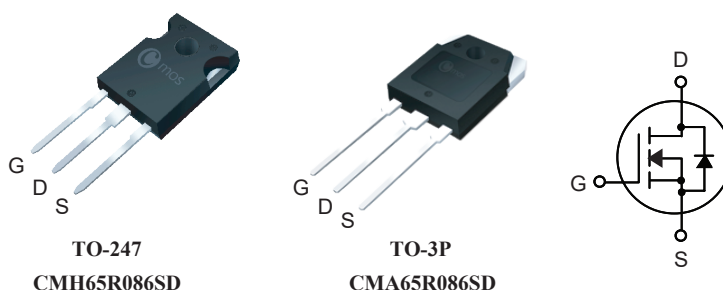
Product Summary

BVDSS	R _{DS(on)} max.	ID
650V	75mΩ	55A

Applications

- Charger
- Power Supply

TO-247/TO-3P 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	55	A
I _D @T _C =100°C	Continuous Drain Current	31	A
I _{DM}	Pulsed Drain Current	220	A
EAS	Single Pulse Avalanche Energy (Note 1)	1500	mJ
P _D @T _C =25°C	Total Power Dissipation	480	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient	---	62	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	0.26	°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 =250μA	650	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =20A	---	68	75	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	3.0	---	5.0	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =650V , V _{GS} =0V	---	---	10	μA
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±30V , V _{DS} =0V	---	---	±250	nA
g _{fs}	Forward Transconductance	V _{DS} =10V , I _D =20A	---	21	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	7	---	Ω
Q _g	Total Gate Charge	V _{DS} =480V , I _D =21.5A V _{GS} =10V	---	76	---	nC
Q _{gs}	Gate-Source Charge		---	21	---	
Q _{gd}	Gate-Drain Charge		---	43	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =400V , I _D =21.5A R _G =27Ω , V _{GS} =10V	---	83	---	ns
T _r	Rise Time		---	105	---	
T _{d(off)}	Turn-Off Delay Time		---	243	---	
T _f	Fall Time		---	98	---	
C _{iss}	Input Capacitance	V _{DS} =100V , V _{GS} =0V , f=1MHz	---	2400	---	pF
C _{oss}	Output Capacitance		---	125	---	
C _{rss}	Reverse Transfer Capacitance		---	3	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	55	A
I _{SM}	Pulsed Source Current		---	---	220	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =40A , T _J =25°C	---	1	1.5	V
t _{rr}	Reverse Recovery Time	di/dt = 100A/μs	---	160	---	ns
Q _{rr}	Reverse Recovery Charge	V _{DD} =400V , I _{SD} =21.5A	---	0.66	---	μC

Note :

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

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

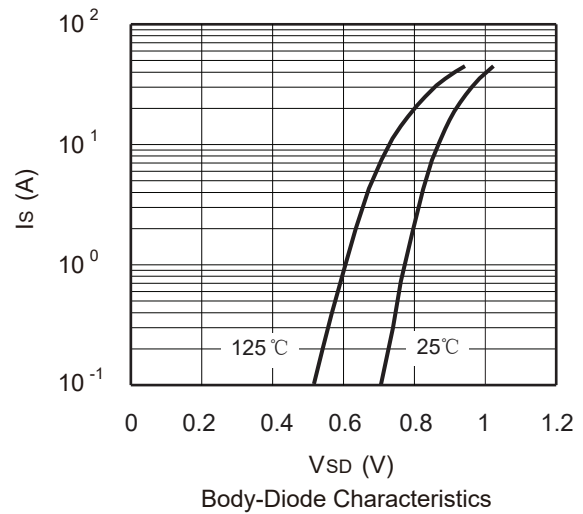
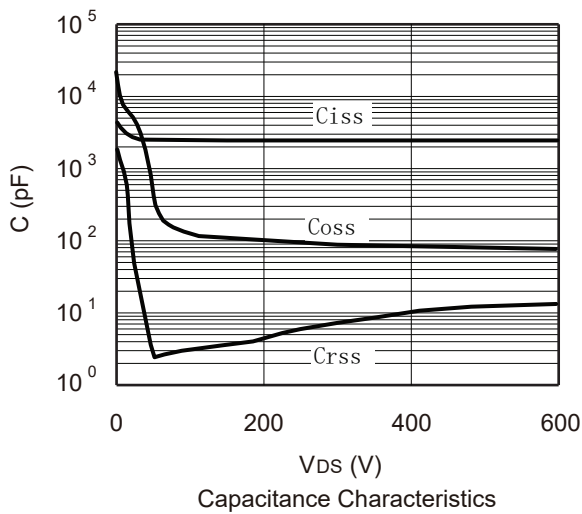
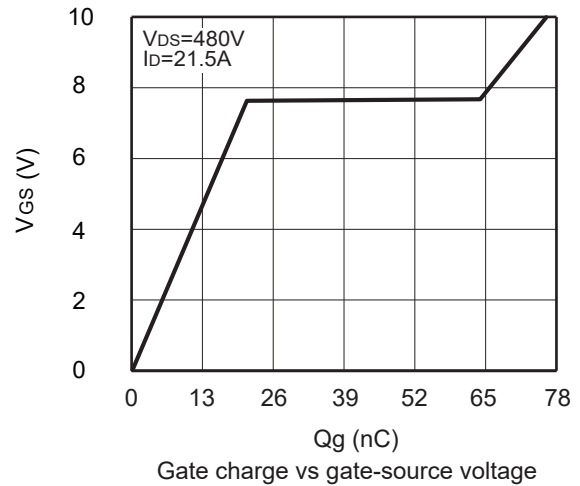
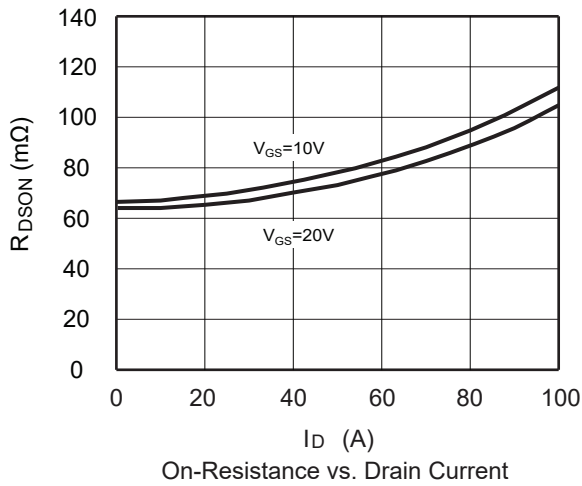
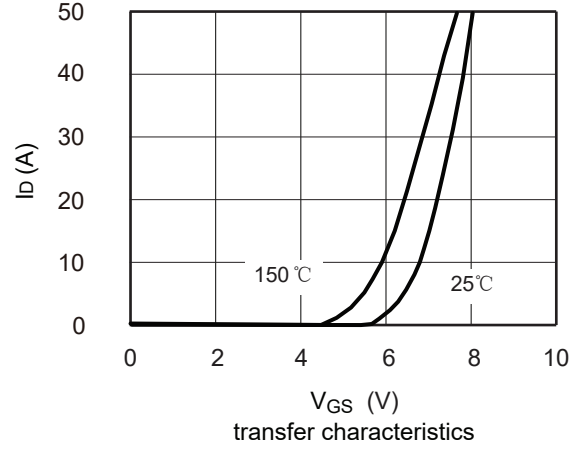
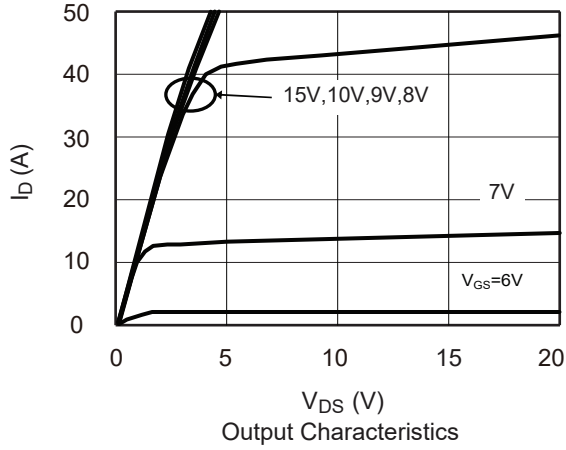
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Cmos reserver the right to improve product design ,functions and reliability wihtout notice.Please refer to the latest version of specification.

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Typical Characteristics



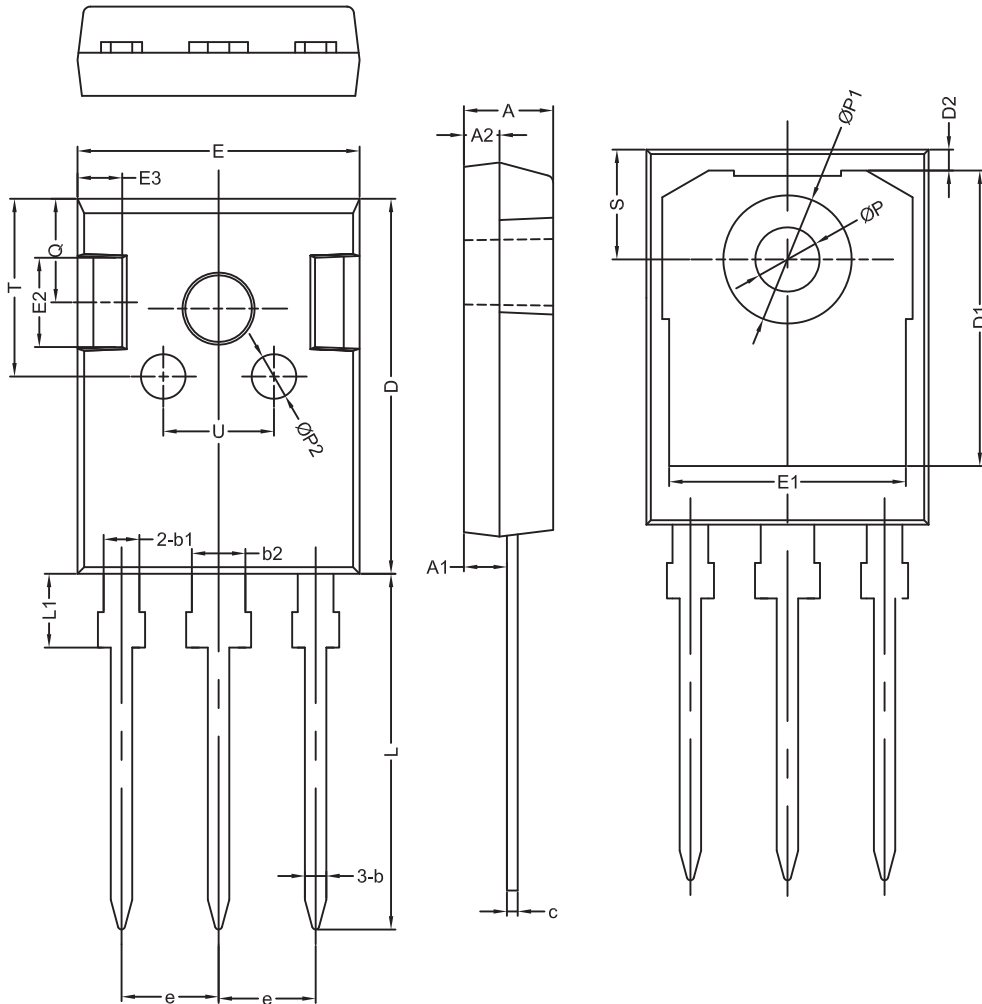
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Package Dimension

TO-247

Unit :mm



符号	机械尺寸/mm			符号	机械尺寸/mm		
	最小值	典型值	最大值		最小值	典型值	最大值
A	4.80	5.00	5.20	E2		5.00	
A1	2.21	2.41	2.61	E3		2.50	
A2	1.90	2.00	2.10	e		5.44	
b	1.10	1.20	1.35	L	19.42	19.92	20.42
b1		2.00		L1		4.13	
b2		3.00		P	3.50	3.60	3.70
c	0.55	0.60	0.75	P1		7.19	
D	20.80	21.00	21.20	P2		2.50	
D1		16.55		Q		5.80	
D2		1.20		S	6.05	6.15	6.25
E	15.60	15.80	16.0	T		10.00	
E1		13.30		U		6.20	

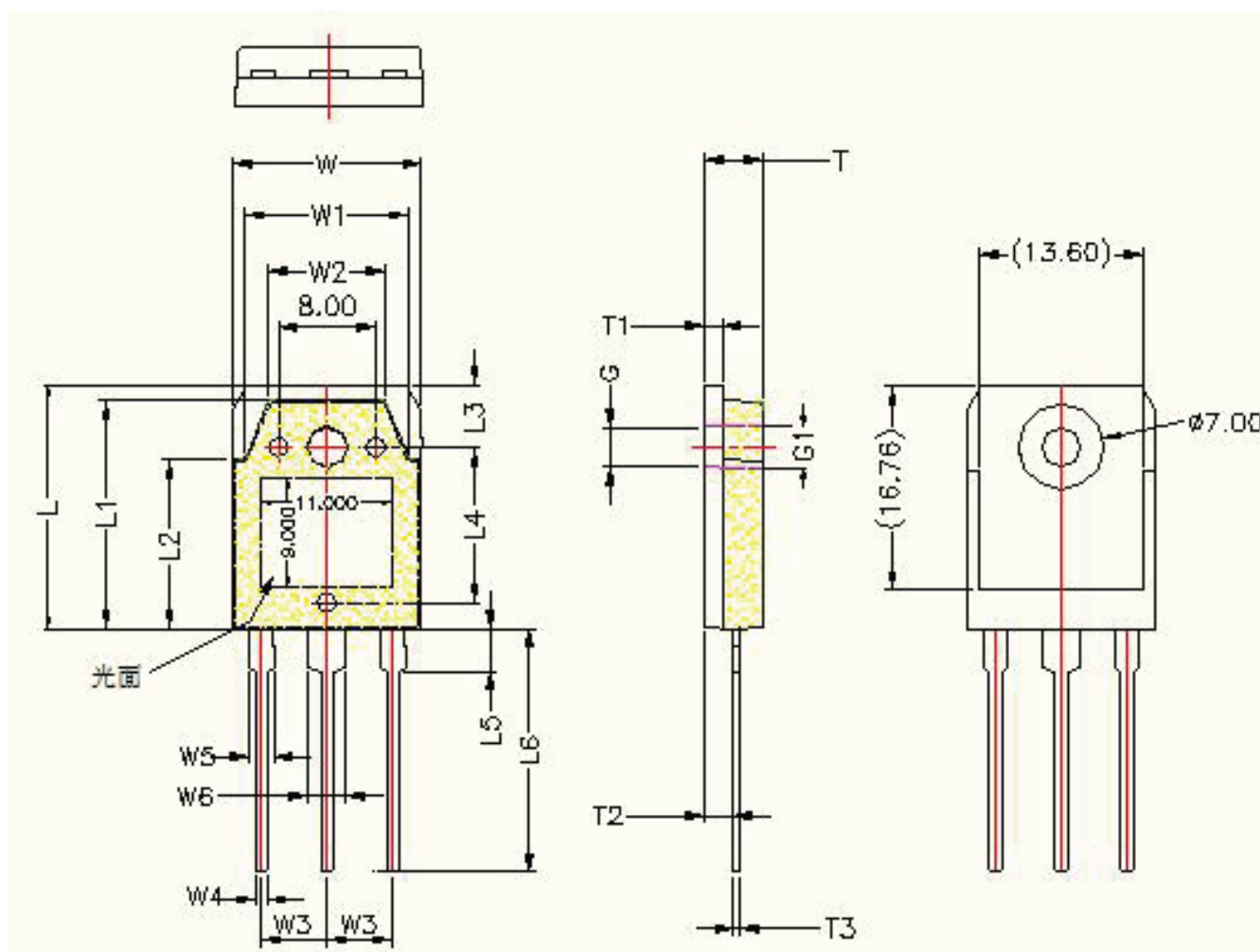
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Package Dimension

TO-3P

Unit :mm



Symbol	Dimensions	Symbol	Dimensions	Symbol	Dimensions
W	15.60±0.3	L	19.90±0.3	T	4.80±0.3
W1	13.60±0.3	L1	18.70±0.3	T1	1.50±0.3
W2	9.60±0.3	L2	13.90±0.3	T2	2.40±0.3
W3	5.45(TYP)	L3	5.00±0.3	T3	0.60±0.3
W4	1.00±0.3	L4	12.76±0.3	G	Ø3.25±0.3
W5	2.10±0.2	L5	3.50±0.3	G1	Ø3.58±0.3
W6	3.10±0.2	L6	20.00±0.3		