

# CMH65R115

## 650V, 0.1Ω typ., 33A N-Channel Super Junction Power MOSFET

### General Description

The CMH65R115 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

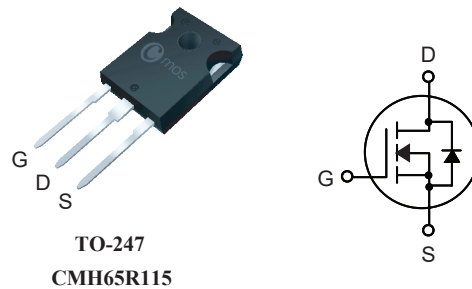
### Product Summary

BVDSS	R <sub>DS(on)</sub> max.	ID
650V	0.115Ω	33A

### Applications

- Adapter
- Switching Applications
- PFC Power Supply Stages

### TO-247 Pin Configuration



### Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V <sub>DS</sub>	Drain-Source Voltage	650	V
V <sub>GS</sub>	Gate-Source Voltage	±30	V
I <sub>D</sub> @T <sub>C</sub> =25°C	Continuous Drain Current	33	A
I <sub>D</sub> @T <sub>C</sub> =100°C	Continuous Drain Current	20.9	A
I <sub>DM</sub>	Pulsed Drain Current	99	A
EAS	Single Pulse Avalanche Energy <sup>1</sup>	1500	mJ
P <sub>D</sub> @T <sub>C</sub> =25°C	Total Power Dissipation	255	W
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	°C
T <sub>J</sub>	Operating Junction Temperature Range	150	°C

### Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R <sub>θJA</sub>	Thermal Resistance Junction-ambient	---	62.5	°C/W
R <sub>θJC</sub>	Thermal Resistance Junction-case	---	0.49	°C/W

**Electrical Characteristics (T<sub>J</sub>=25°C , unless otherwise noted)**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V , I <sub>D</sub> =250uA	650	---	---	V
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance	V <sub>GS</sub> =10V , I <sub>D</sub> =15A	---	0.1	0.115	Ω
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250μA	2	---	4	V
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> =600V , V <sub>GS</sub> =0V	---	---	1	uA
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> = ±30V , V <sub>DS</sub> =0V	---	---	±100	nA
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =10V , I <sub>D</sub> =15A	---	24	---	S
R <sub>g</sub>	Gate Resistance	V <sub>DS</sub> =0V , V <sub>GS</sub> =0V , f=1MHz	---	2.8	---	Ω
Q <sub>g</sub>	Total Gate Charge	I <sub>D</sub> =33A	---	79	---	nC
Q <sub>gs</sub>	Gate-Source Charge	V <sub>DS</sub> =480V	---	18	---	
Q <sub>gd</sub>	Gate-Drain Charge	V <sub>GS</sub> = 10 V	---	34	---	
T <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DD</sub> =300V	---	50	---	ns
T <sub>r</sub>	Rise Time	V <sub>GS</sub> = 10 V	---	105	---	
T <sub>d(off)</sub>	Turn-Off Delay Time	R <sub>G</sub> =25Ω	---	240	---	
T <sub>f</sub>	Fall Time	I <sub>D</sub> =33A	---	82	---	
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =45V , V <sub>GS</sub> =0V , f=1MHz	---	2750	---	pF
C <sub>oss</sub>	Output Capacitance		---	1200	---	
C <sub>riss</sub>	Reverse Transfer Capacitance		---	18	---	

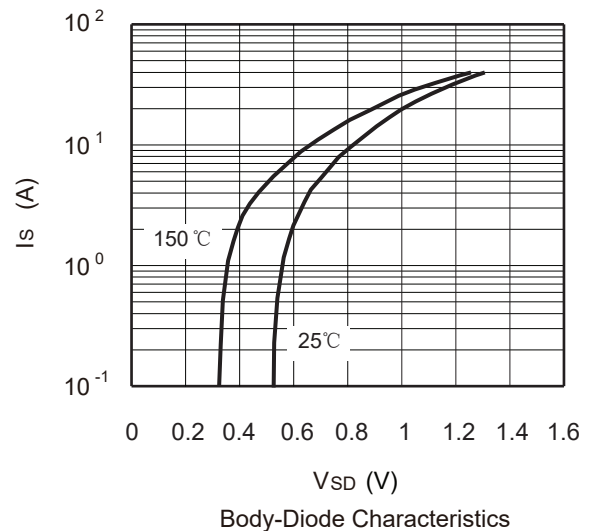
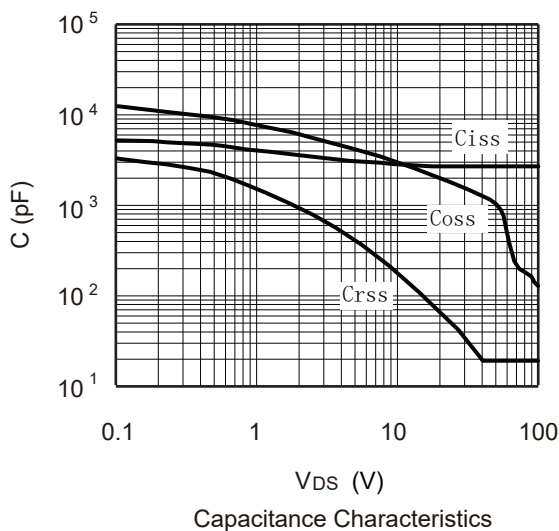
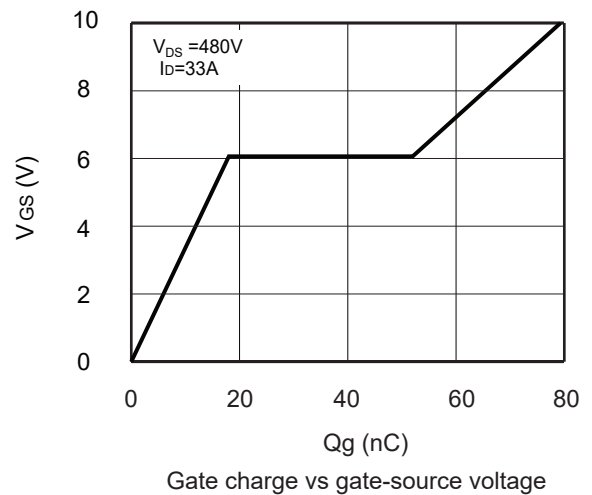
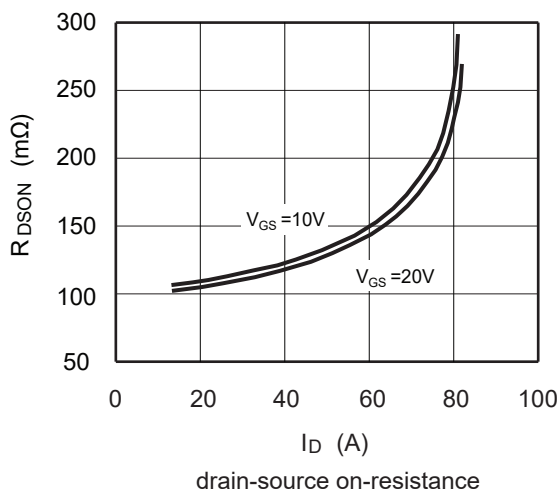
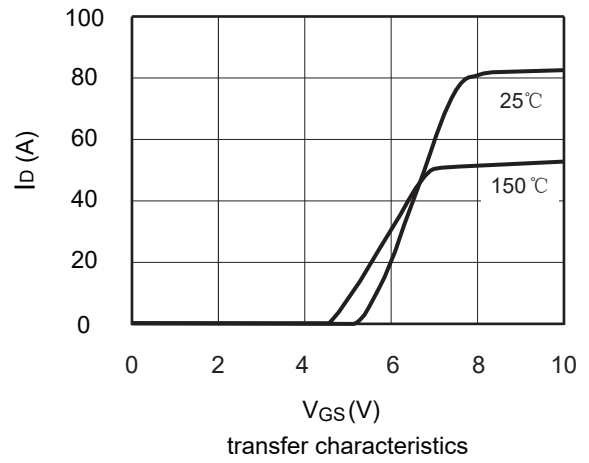
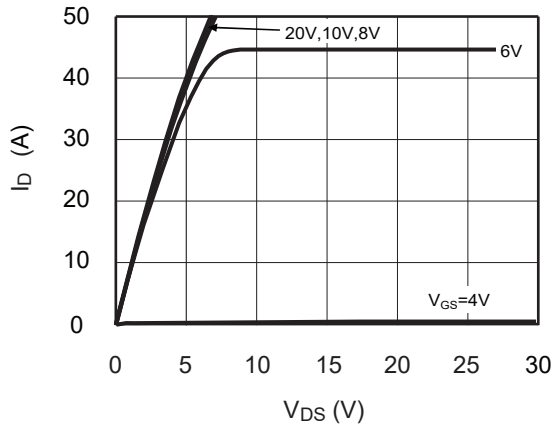
**Diode Characteristics**

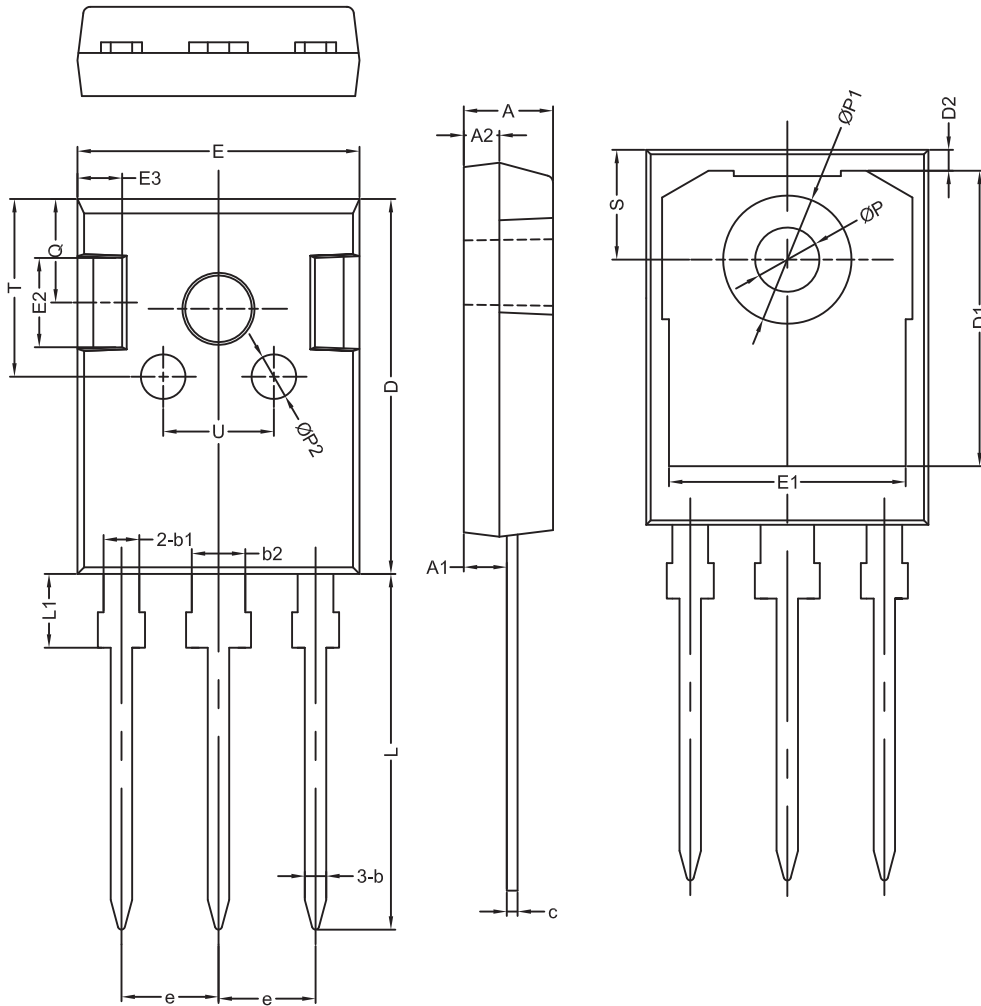
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I <sub>S</sub>	Continuous Source Current	V <sub>G</sub> =V <sub>D</sub> =0V , Force Current	---	---	33	A
I <sub>SM</sub>	Pulsed Source Current		---	---	99	A
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> =0V , I <sub>S</sub> =15A , T <sub>J</sub> =25°C	---	0.83	1.4	V

Note :

1.The EAS data shows Max. rating . The test condition is V<sub>DD</sub>=100V , V<sub>GS</sub>=10V , L=30mH , I<sub>AS</sub>=10A.

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.

**Typical Characteristics**


**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	