

## **N-Channel Super Junction Power MOSFET**

## **General Description**

The 65R280Q 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**

BVDSS	RDSON	ID		
650V	0.28Ω	14A		

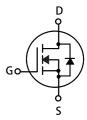
#### **Applications**

- 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 <sub>D</sub> @T <sub>C</sub> =25℃	Continuous Drain Current	14	Α
I <sub>D</sub> @T <sub>C</sub> =100℃	Continuous Drain Current	9	А
I <sub>DM</sub>	Pulsed Drain Current (Note 1)	56	А
EAS	Single Pulse Avalanche Energy (Note 2)	302	mJ
P <sub>D</sub> @T <sub>C</sub> =25℃	Total Power Dissipation	105	W
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	$^{\circ}$
$T_J$	Operating Junction Temperature Range	150	$^{\circ}$

#### **Thermal Data**

Symbol	Parameter		Rating	Unit	
R <sub>0JA</sub>	Thermal Resistance Junction-ambient	(Note 3, 4)	62	°C/W	
R <sub>0JC</sub>	Thermal Resistance Junction-case		1.2	°C/W	

# CMD65R280Q/CMU65R280Q



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## Electrical Characteristics ( $T_J=25^{\circ}$ C), unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Тур.	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> =6A			0.28	Ω
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250uA	2		4	V
	Drain-Source Leakage Current	$V_{DS}$ =650V , $V_{GS}$ =0V, $T_j$ =25 $^{\circ}$ C			1	- uA
I <sub>DSS</sub>		V <sub>DS</sub> =650V , V <sub>GS</sub> =0V , T <sub>j</sub> =150 °C		10		
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> = ±30V , V <sub>DS</sub> =0V			±100	nA
gfs	Forward Transconductance	V <sub>DS</sub> =10V, I <sub>D</sub> =6A		11		S
$R_g$	Gate Resistance	V <sub>DS</sub> =0V , V <sub>GS</sub> =0V , f=1MHz		21		Ω
$Q_g$	Total Gate Charge	I <sub>D</sub> =14A		30		
$Q_gs$	Gate-Source Charge	V <sub>DD</sub> =520V		7.1		nC
$Q_gd$	Gate-Drain Charge	V <sub>GS</sub> = 10V		10		
$T_{d(on)}$	Turn-On Delay Time	V <sub>DD</sub> =325V		25		
T <sub>r</sub>	Rise Time	V <sub>BB</sub> 323 V V <sub>GS</sub> =10 V		60		no
T <sub>d(off)</sub>	Turn-Off Delay Time	I <sub>D</sub> =14A		150		ns
T <sub>f</sub>	Fall Time	R <sub>G</sub> =25Ω		52		
C <sub>iss</sub>	Input Capacitance			1050		
C <sub>oss</sub>	Output Capacitance	V <sub>DS</sub> =25V , V <sub>GS</sub> =0V , f=1MHz		1200		pF
C <sub>rss</sub>	Reverse Transfer Capacitance			40		

## **Diode Characteristics**

Symbol	Parameter	Conditions	Min.	Тур.	Max.	Unit
Is	Continuous Source Current	V <sub>G</sub> =V <sub>D</sub> =0V , Force Current			14	Α
I <sub>SM</sub>	Pulsed Source Current				56	Α
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> =0V , I <sub>S</sub> =12A			1.2	V

#### Notes:

- 1. Repetitive Rating : Pulse width limited by maximum junction temperature.
- 2. The EAS data shows Max. rating . The test condition is  $V_{DS}$ =50V ,  $V_{GS}$ =10V , L=20mH , Ias=5.5A.
- 3. The value of Reja is measured with the device in a still air environment with Ta=25  $^{\circ}\!\!\mathrm{C}_{\cdot}$
- 4. The Reja is the sum of the thermal impedance from junction to case Rejc and case to ambient.

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

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

Cmos reserver the right to improve product design ,functions and reliability wihtout notice.