CQAOS 重庆万国

Green Product

CQS21305P

30V P-CHANNEL MOSFET

Product Summary

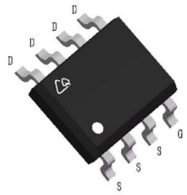
V(BR)DSS	RDS(ON) max	ID max
-30V	<6.4mΩ @ VGS = -10V	-20A
	<9.6mΩ @ VGS = -4.5V	

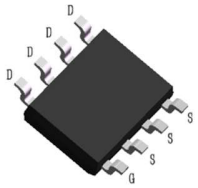
Description and Applications

The CQS21305P uses advanced trench MOS technology to provide extremely low RDS(ON) and high current capability, this device is suitable for use as load switch and battery protection charge/discharge applications.

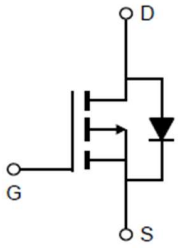
RoHS and Halogen-Free Compliant.

View and Internal Schematic Diagram





SO8



Internal Schematic

Marking Information

SO8

NOTE:
LOGO - CQAOS
21305P - Part number coder
F - Fab location code
A - Assembly location code
Y - Year code
W - Week code
L&T - Assembly lot code

Ordering Information

Part Number	Case	Packaging
CQS21305P	SO8	3,000/Tape & Reel

Maximum Ratings (@T_A = +25°C unless otherwise specified.)

Parameters		Symbol	Max	Units
Drain-Source Voltage		VDSS	-30	V
Gate-Source Voltage		VGSS	±20	V
Continuous Drain Current	TA = +25°C TA = +70°C	ID	-20 -14	A
Pulsed Drain Current C		IDM	-300	A
Power Dissipation B	TA = +25°C TA = +70°C	PD	3.1 2	W
Operating and Storage Temperature Range		TJ, TG	-55 to+150	°C

Thermal Characteristics

Characteristic		Symbol	Typ	Max	Unit
Maximum Junction-to-Ambient [A]	t ≤ 10s	$R_{\theta JA}$	29	40	°C/W
Maximum Junction-to-Ambient [A D]	Steady-State		60	75	°C/W
Maximum Junction-to-Lead	Steady-State	$R_{\theta JL}$	14	24	°C/W

Electrical Characteristics (T_A = +25°C unless otherwise specified.)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
STATIC PARAMETERS						
BV_{DSS}	Drain-Source Breakdown Voltage	I_D=-250μA, V_{GS}=0V	-30			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-30V, V_{GS}=0V			-1	μA
		T_J=55°C			-5	
I_{GSS}	Gate-Body leakage current	V_{DS}=0V, V_{GS}= ±20V			±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} I_D=-250μA	-1	-1.45	-2	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=-10V, I_D=-20A		3.6	6.4	mΩ
		T_J=125°C		4.9	9	
		V_{GS}=-4.5V, I_D=-20A		5	9.6	mΩ
g_{FS}	Forward Trans conductance	V_{DS}=-5V, I_D=-20A		72		S
V_{SD}	Diode Forward Voltage	I_S=-1A,V_{GS}=0V		-0.7	-1	V
I_S	Maximum Body-Diode Continuous Current				-4.4	A
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-15V, f=1MHz		5418		pF
C_{oss}	Output Capacitance			694		pF
C_{rss}	Reverse Transfer Capacitance			466		pF
R_g	Gate resistance	V_{GS}=0V, V_{DS}=0V, f=1MHz	2.6	4	7	Ω
SWITCHING PARAMETERS						
Q_g	Total Gate Charge	V_{GS}=-10V, V_{DS}=-15V, I_D=-20A		104		nC
Q_{gs}	Gate Source Charge			18		nC
Q_{gd}	Gate Drain Charge			21		nC
$t_{D(on)}$	Turn-On Delay Time	V_{GS}=-10V, V_{DS}=-15V, R_L=0.75Ω, R_{GEN}=3Ω		12		ns
t_r	Turn-On Rise Time			79		ns
$t_{D(off)}$	Turn-Off Delay Time			128		ns
t_f	Turn-Off Fall Time			81		ns
t_{rr}	Body Diode Reverse Recovery Time	IF=-20A, dI/dt=100A/μs		26		ns
Q_{rr}	Body Diode Reverse Recovery Charge	IF=-20A, dI/dt=100A/μs		12		nC

A. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 1oz. Copper, in a still air environment with T_A =25°C. The value in any given application depends on the user's specific board design.

B. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using ≤ 10s junction-to-ambient thermal resistance.

C. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C. Ratings are based on low frequency and duty cycles to keep initial T_J=25°C.

D. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to lead $R_{\theta JL}$ and lead to ambient.

E. The static characteristics in Figures 1 to 6 are obtained using <300μs pulses, duty cycle 0.5% max.

F. These curves are based on the junction-to-ambient thermal impedance which is measured with the device mounted on 1in^2 FR-4 board with 1oz. Copper, assuming a maximum junction temperature of $T_{J(MAX)}$=150°C. The SOA curve provides a single pulse rating.

TYPICAL ELECTRICAL AND THERMAL CHARACTERIS

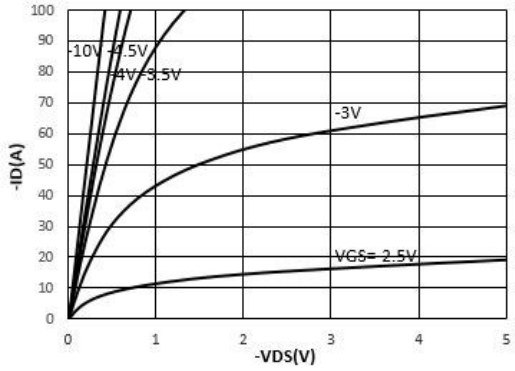


Figure 1：On-Region Characteristics (Note E)

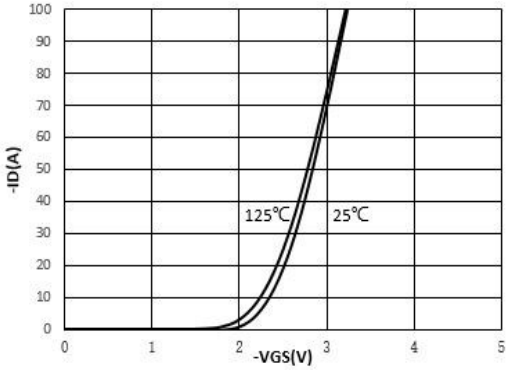


Figure 2 Transfer Characteristics (Note E)

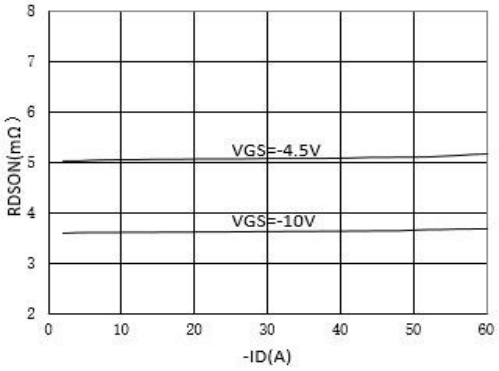


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

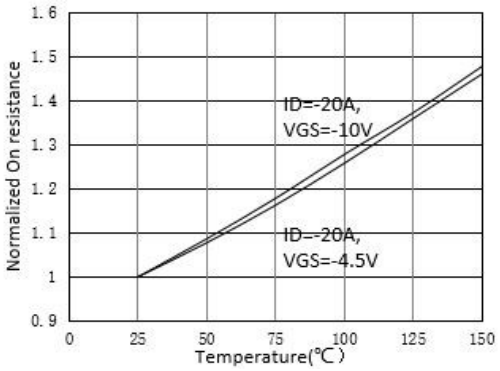


Figure 4: On-Resistance vs. Junction Temperature (Note E)

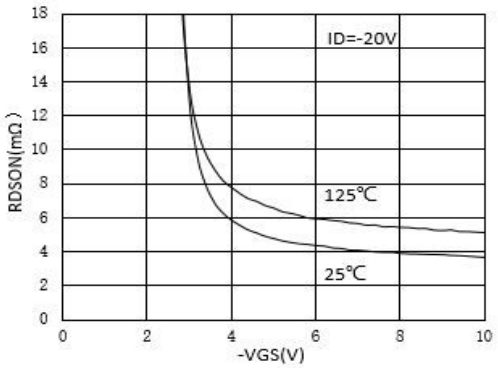


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

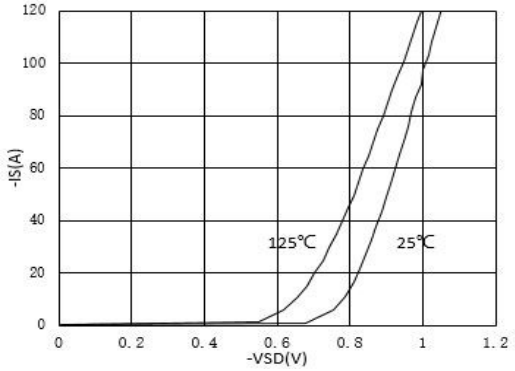


Figure 6: Body-Diode Characteristics (Note E)

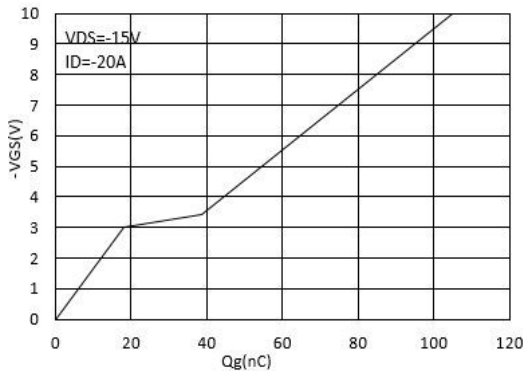


Figure 7: Gate-Charge Characteristics

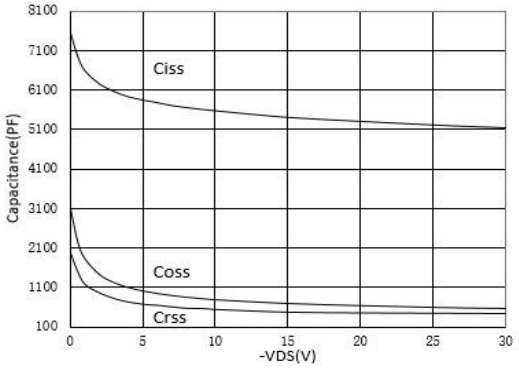


Figure 8: Capacitance Characteristics

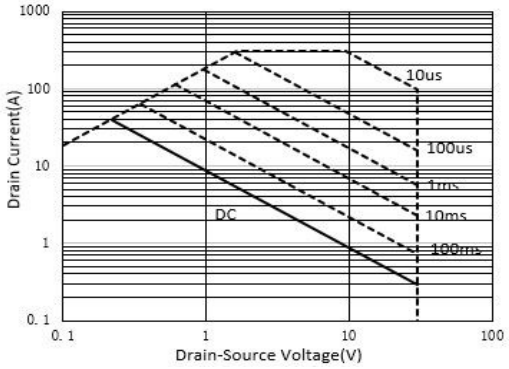


Figure 9: Maximum Forward Biased Safe Operating Area

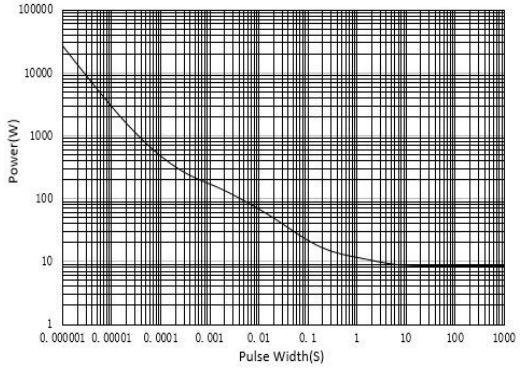


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

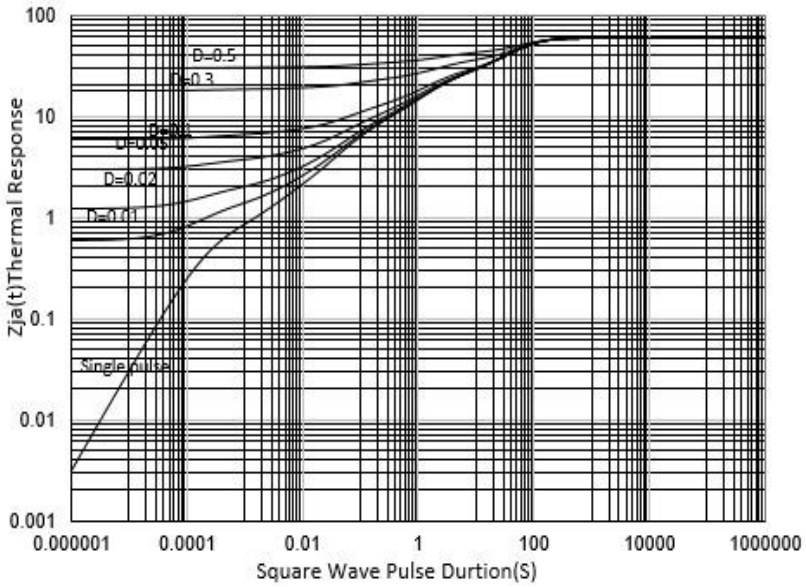


Figure 11: Normalized Maximum Transient Thermal Impedance (Note E)

单击下面可查看定价，库存，交付和生命周期等信息

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