CQAOS 重庆万国

Green Product

CQS21357A

30V P-CHANNEL MOSFET

Product Summary

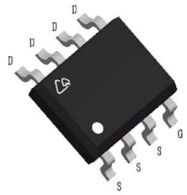
V(BR)DSS	RDS(ON) max	ID max
-30V	<13mΩ @ VGS = -10V	-12A
	<19mΩ @ VGS = -4.5V	

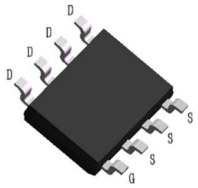
Description and Applications

The CQS21357A uses advanced trench technology to provide excellent RDS(ON). This device is suitable for use as a load switch or other general applications.

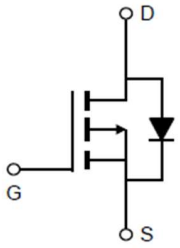
RoHS and Halogen-Free Compliant.

View and Internal Schematic Diagram





SO8



Internal Schematic

Marking Information

SO8

PN=21357A
F=Fab location
A=Assembly location
Y=Year
W=Week
LT=Lot sequence

Ordering Information

Part Number	Case	Packaging
CQS21357A	SO8	3,000/Tape & Reel

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

Parameters		Symbol	Max	Units
Drain-Source Voltage		V_{DSS}	-30	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current	T_A = +25°C T_A = +70°C	I_D	-12 -10	A
Pulsed Drain Current [C]		I_{DM}	-44	A
Power Dissipation [B]	T_A = +25°C T_A = +70°C	P_D	3.1 2	W
Operating and Storage Temperature Range		T_J, T_G	-55 to+150	°C

Thermal Characteristics

Characteristic		Symbol	Typ	Max	Unit
Maximum Junction-to-Ambient [A]	t ≤ 10s	$R_{\theta JA}$	32	40	°C/W
Maximum Junction-to-Ambient [A D]	Steady-State		59	75	°C/W
Maximum Junction-to-Case	Steady-State	$R_{\theta JC}$	16	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	ID=-250μA, VGS=0V	-30			V
I_{DSS}	Zero Gate Voltage Drain Current	VDS=-30V, VGS=0V			-1	μA
		TJ=55°C			-5	
I_{GSS}	Gate-Body leakage current	VDS=0V, VGS= ±20V			±100	nA
$V_{GS(th)}$	Gate Threshold Voltage	VDS=VGS ID=-250μA	-1	-1.5	-2	V
RDS(ON)	Static Drain-Source On-Resistance	VGS=-10V, ID=-12A		8	13	mΩ
		TJ=125°C		11.8	18.5	
		VGS=-4.5V, ID=-7A		15.5	19	mΩ
g_{FS}	Forward Transconductance	VDS=-5V, ID=-10.5A		38.7		S
V_{SD}	Diode Forward Voltage	IS=-4.1A,VGS=0V		-0.7	-1	V
I_S	Maximum Body-Diode Continuous Current				-4.4	A
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitance	VGS=0V, VDS=-15V, f=1MHz		1781		pF
C_{oss}	Output Capacitance			237		pF
C_{rss}	Reverse Transfer Capacitance			201		pF
R_g	Gate resistance	VGS=0V, VDS=0V,		2.4		Ω
SWITCHING PARAMETERS						
Q_g(10V)	Total Gate Charge	VGS=-10V, VDS=-15V, ID=-15A		46		nC
Q_{gs}	Gate Source Charge			1.0		nC
Q_{gd}	Gate Drain Charge			1.4		nC
$t_{D(on)}$	Turn-On Delay Time	VGS=-10V, VDS=-15V, RL=1Ω, RGEN=3Ω		8		ns
t_r	Turn-On Rise Time			27		ns
$t_{D(off)}$	Turn-Off Delay Time			68		ns
t_f	Turn-Off Fall Time			39		ns
t_{rr}	Body Diode Reverse Recovery Time	IF=-4.0A, dI/dt=100A/μs		13.5		ns
Q_{rr}	Body Diode Reverse Recovery Charge	IF=-4.0A, dI/dt=100A/μs		3.7		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 impedence 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 impedence 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

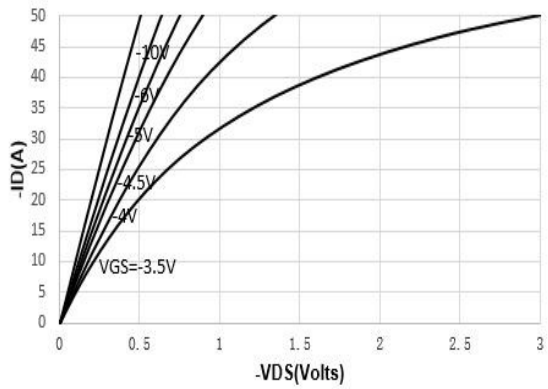


Figure 1：On-Region Characteristics (Note E)

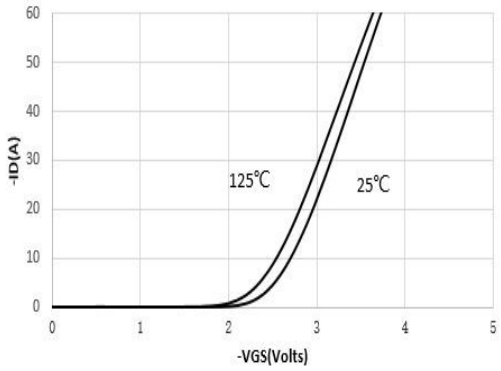


Figure 2 Transfer Characteristics (Note E)

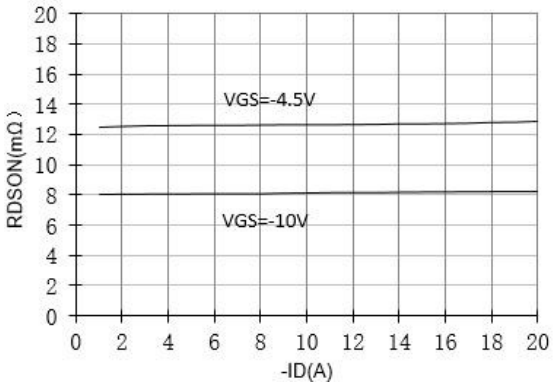


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

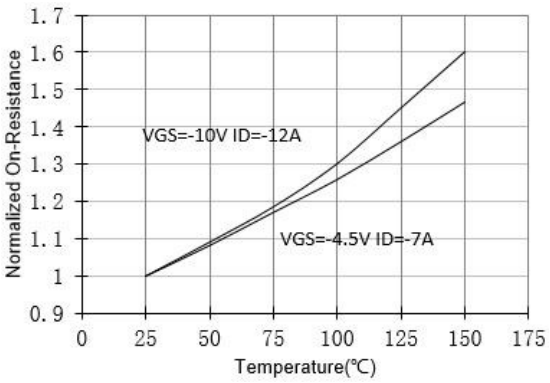


Figure 4: On-Resistance vs. Junction Temperature (Note E)

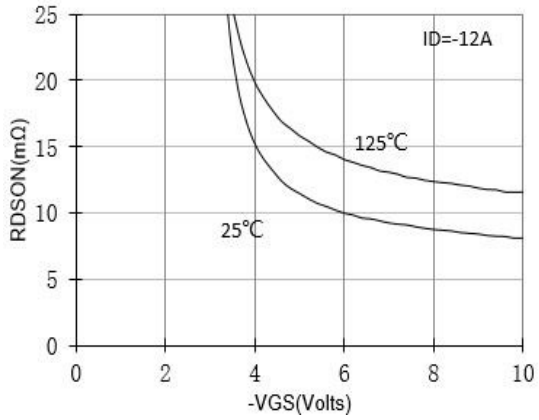


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

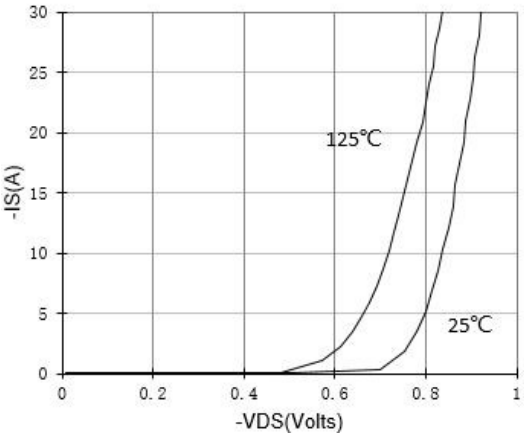


Figure 6: Body-Diode Characteristics (Note E)

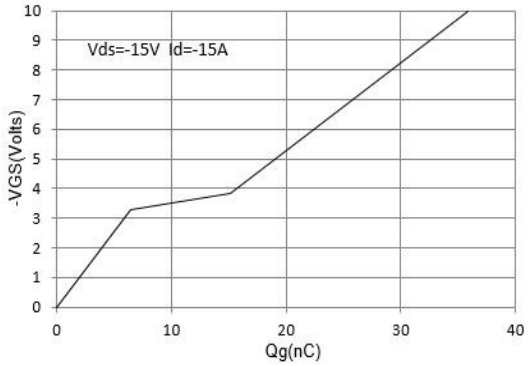


Figure 7: Gate-Charge Characteristics

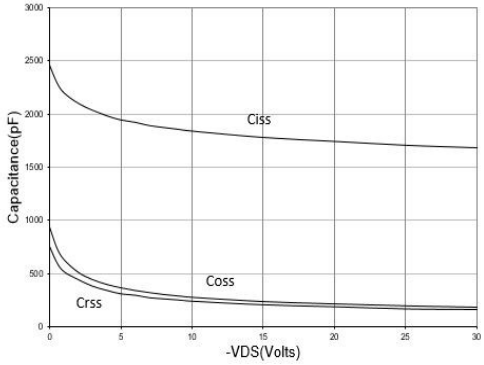


Figure 8: Capacitance Characteristics

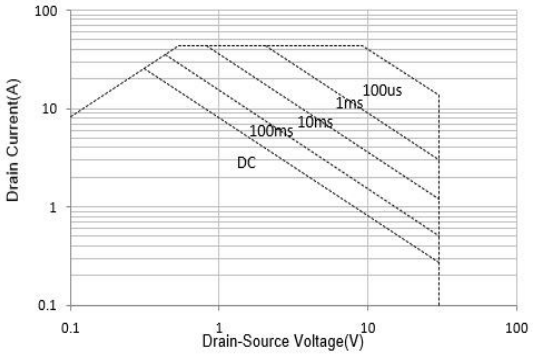


Figure 9: Maximum Forward Biased Safe Operating Area

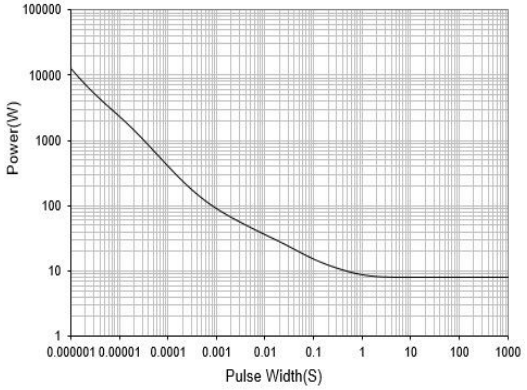


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

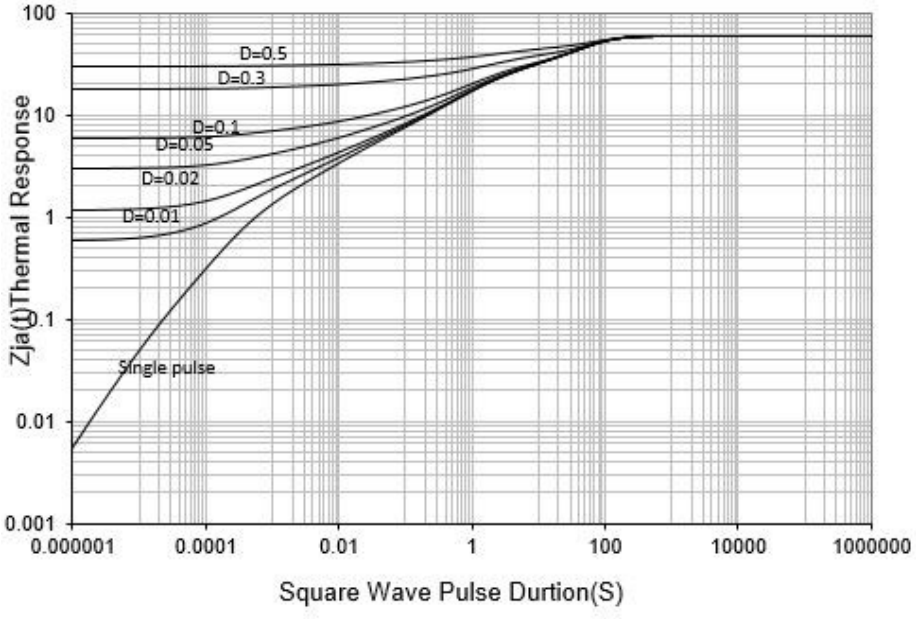


Figure 11: Normalized Maximum Transient Thermal Impedance (Note E)

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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