CQAOS 重庆万国

Green Product

CQD50N06

60V N-CHANNEL MOSFET

Product Summary

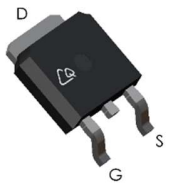
V(BR)DSS	RDS(ON) max	ID max
60V	<23mΩ @ VGS = 10V	33A
	<25mΩ @ VGS = 4.5V	

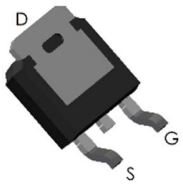
Description and Applications

The CQD50N06 uses advanced trench technology to provide excellent RDS(ON). This device provides superior switching performance and commutation mode.

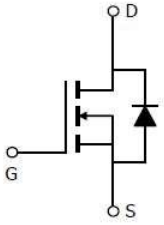
This device is well suited for low voltage applications such as DC/DC converters and high efficiency switching for power management in portable and battery operated products.

View and Internal Schematic Diagram





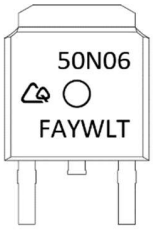
DPAK (TO252)



Internal Schematic

Marking Information

DPAK



NOTE:
LOGO - CQAOS
50N06 - Part number coder
F=Fab location
A=Assembly location
Y=Year
W=Week
LT=Lot sequence

Ordering Information

Part Number	Case	Packaging
CQD50N06	DPAK	2,500/Tape & Reel

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

Parameters		Symbol	Max	Units
Drain-Source Voltage		VDSS	60	V
Gate-Source Voltage		VGSS	±20	V
Continuous Drain Current	TA = +25°C TA = +100°C	ID	33 23	A
Pulsed Drain Current C		IDM	60	A
Power Dissipation	TA = +25°C TA = +100°C	PD	60 28	W
Operating and Storage Temperature Range		TJ, TG	-55 to+175	°C

Thermal Characteristics

Characteristic		Symbol	Typ	Max	Unit
Maximum Junction-to-Ambient A	t ≤ 10s	$R_{\theta JA}$	17.4	25	°C/W
Maximum Junction-to-Ambient A D	Steady-State		51	60	°C/W
Maximum Junction-to-Case	Steady-State	$R_{\theta JC}$	1.8	2.5	°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	60			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=60V, 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	1.6	2.1	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V, I_D=20A		15.3	23	mΩ
		T_J=125°C		29	37	
		V_{GS}=4.5V, I_D=20A		18.6	25	mΩ
g_{FS}	Forward Transconductance	V_{DS}=5V, I_D=4.0A		40		S
V_{SD}	Diode Forward Voltage	I_S=4.1A,V_{GS}=0V		0.7	1	V
I_S	Maximum Body-Diode Continuous Current				33	A
DYNAMIC PARAMETERS						
C_{iss}	Input Capacitancer	V_{GS}=0V, V_{DS}=30V, f=1MHz		2785		pF
C_{oss}	Output Capacitance			105		pF
C_{rss}	Reverse Transfer Capacitance			86		pF
R_g	Gate resistance	V_{GS}=0V, V_{DS}=0V,	1	1.5	2.35	Ω
SWITCHING PARAMETERS						
Q_g(10V)	Total Gate Charge	V_{GS}=10V, V_{DS}=30V, I_D=20A		57		nC
Q_{gs}	Gate Source Charge			13		nC
Q_{gd}	Gate Drain Charge			9		nC
$t_{D(on)}$	Turn-On Delay Time	V_{GS}=10V, V_{DS}=30V, R_L=1.5Ω, R_{GEN}=3Ω		10		ns
t_r	Turn-On Rise Time			43		ns
$t_{D(off)}$	Turn-Off Delay Time			44		ns
t_f	Turn-Off Fall Time			60		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		16		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

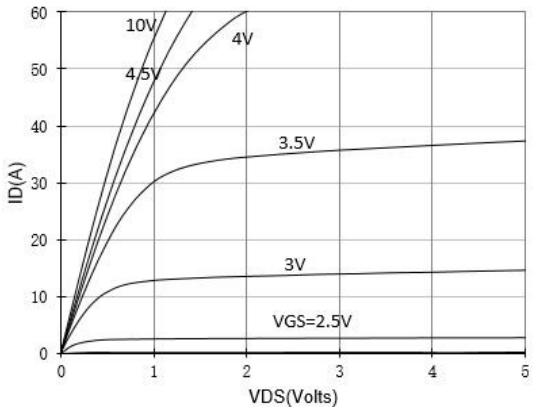


Figure 1：On-Region Characteristics (Note E)

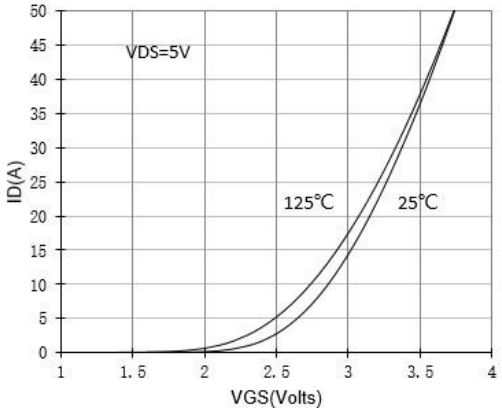


Figure 2 Transfer Characteristics (Note E)

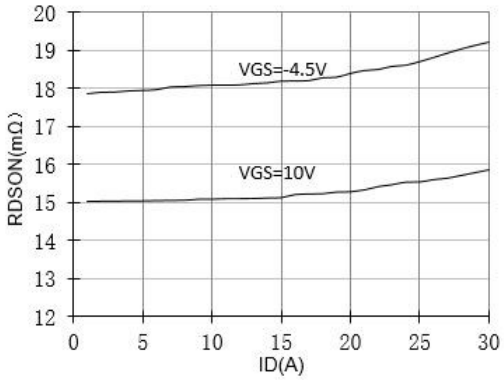


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

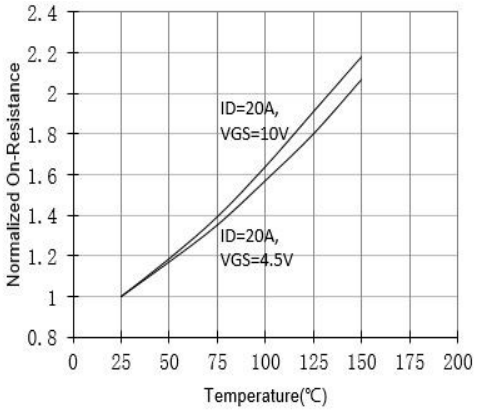


Figure 4: On-Resistance vs. Junction Temperature (Note E)

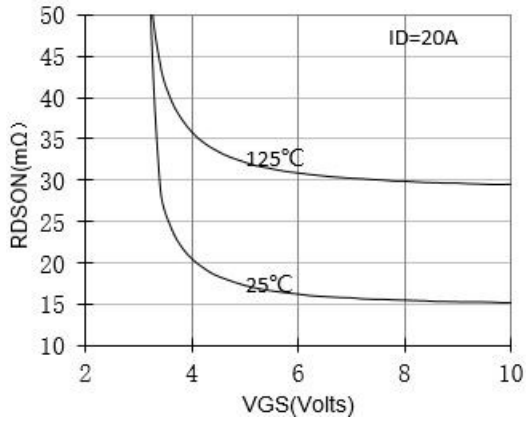


Figure 5: On-Resistance vs. Gate-Source Voltage (Note E)

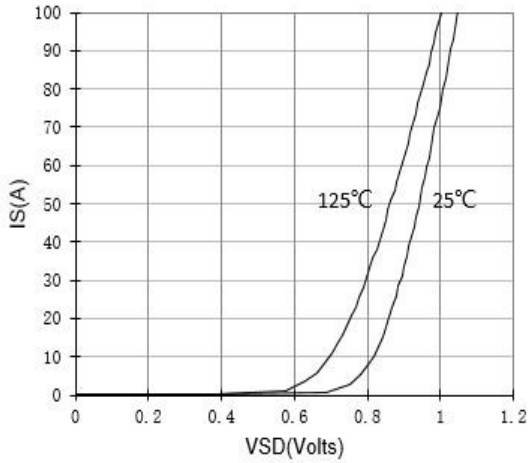


Figure 6: Body-Diode Characteristics (Note E)

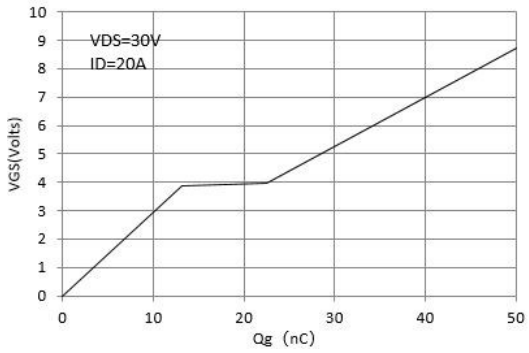


Figure 7: Gate-Charge Characteristics

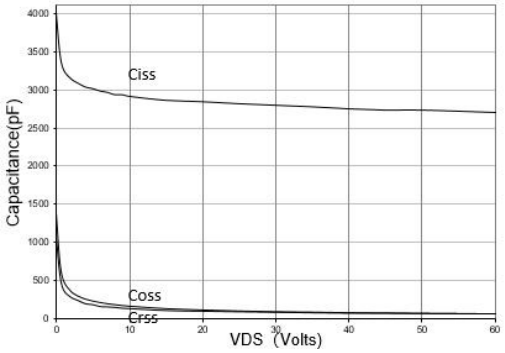


Figure 8: Capacitance Characteristics

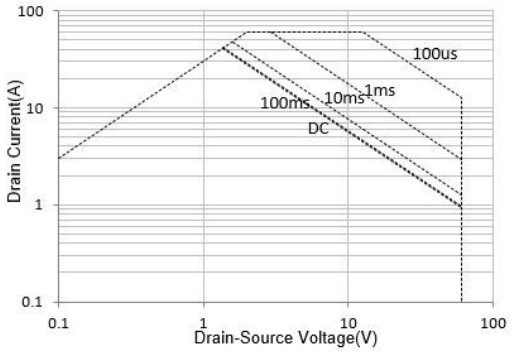


Figure 9: Maximum Forward Biased Safe Operating Area

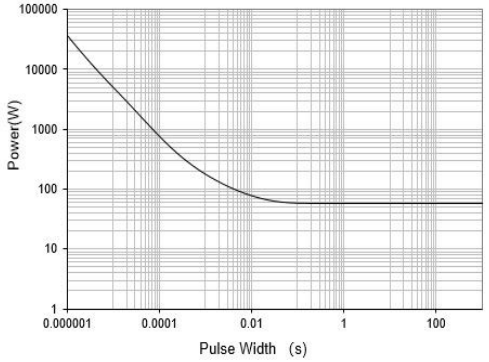


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

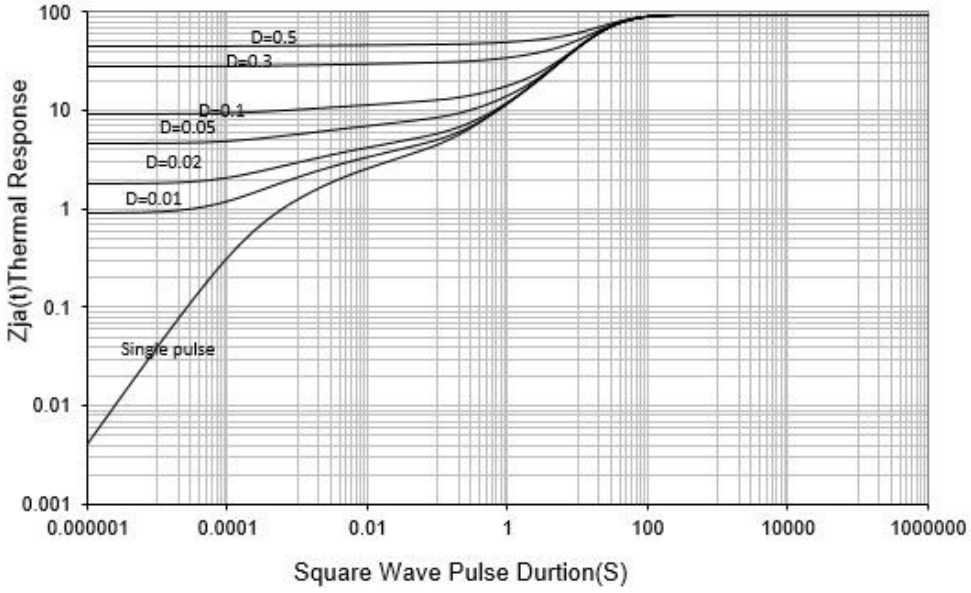


Figure 11: Normalized Maximum Transient Thermal Impedance (Note E)

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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