

Product Summary

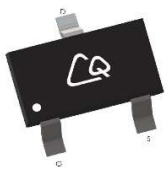
V(BR)DSS	RDS(ON) max	ID max
-40V	<80mΩ @ VGS = -10V	-3.2A
	<100mΩ @ VGS = -4.5V	

Description and Applications

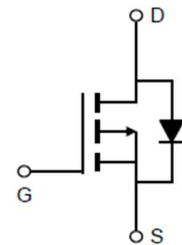
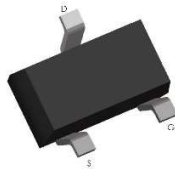
The CQA04P80 uses advanced trench technology to provide excellent RDS(ON) and efficiency for most of the small power switching and load switch applications.

RoHS and Halogen-Free Compliant.

View and Internal Schematic Diagram



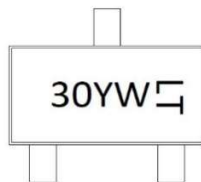
SOT23



Internal Schematic

Marking Information

SOT23



NOTE:
30 - Part number coder
Y - Year code
W - Week code
L&T - Assembly lot code

Ordering Information

Part Number	Case	Packaging
CQA04P80	SOT23	3,000/Tape & Reel; 21,000/Inner Box

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

Parameters	Symbol	Max	Units
Drain-Source Voltage	VDSS	-40	V
Gate-Source Voltage	VGSS	±20	V
Continuous Drain Current	ID	-3.2 -2.56	A
		TA = +25°C TA = +70°C	
Pulsed Drain Current ^C	IDM	-22	A
Power Dissipation ^B	PD	1.38 0.88	W
		TA = +25°C TA = +70°C	
Operating and Storage Temperature Range	TJ, TG	-55 to +150	°C

Thermal Characteristics

Characteristic		Symbol	Typ	Max	Unit
Maximum Junction-to-Ambient ^A	$t \leq 10s$	$R_{\theta JA}$	81	90	$^{\circ}C/W$
Maximum Junction-to-Ambient ^{A D}	Steady-State		110	125	$^{\circ}C/W$
Maximum Junction-to-Lead	Steady-State	$R_{\theta JL}$	40.6	50	$^{\circ}C/W$

Electrical Characteristics (@ $T_A = +25^{\circ}C$ unless otherwise specified.)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
STATIC PARAMETERS						
BVDSS	Drain-Source Breakdown Voltage	$I_D = -250\mu A, V_{GS} = 0V$	-40			V
IDSS	Zero Gate Voltage Drain Current	$V_{DS} = -40V, V_{GS} = 0V$ $T_J = 55^{\circ}C$			-1 -5	μA
IGSS	Gate-Body leakage current	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
VGS(th)	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1	-1.7	-2.5	V
RDS(ON)	Static Drain-Source On-Resistance	$V_{GS} = -10V, I_D = -3.0A$ $T_J = 125^{\circ}C$		65	80	m Ω
		$V_{GS} = -4.5V, I_D = -2.0A$		98		
gFS	Forward Trans conductance	$V_{DS} = -5V, I_D = -3.0A$		8.3		S
VSD	Diode Forward Voltage	$I_S = -1A, V_{GS} = 0V$		-0.8	-1	V
IS	Maximum Body-Diode Continuous Current				-1.7	A
DYNAMIC PARAMETERS						
Ciss	Input Capacitance			546		pF
Coss	Output Capacitance	$V_{GS} = 0V, V_{DS} = -15V,$ $f = 1MHz$		54		pF
Crss	Reverse Transfer Capacitance			46		pF
Rg	Gate resistance	$V_{GS} = 0V, V_{DS} = 0V,$ $f = 1MHz$		10.8		Ω
SWITCHING PARAMETERS						
Qg	Total Gate Charge			6.3		nC
Qgs	Gate Source Charge	$V_{GS} = -4.5V, V_{DS} = -32V,$ $I_D = -3.0A$		2.1		nC
Qgd	Gate Drain Charge			2.5		nC
tD(on)	Turn-On Delay Time			4.2		ns
tr	Turn-On Rise Time	$V_{GS} = -4.5V, V_{DS} = -20V,$ $I_D = -3A, R_{GEN} = 3.3\Omega$		23		ns
tD(off)	Turn-Off Delay Time			26.8		ns
tf	Turn-Off Fall Time			20.6		ns
trr	Body Diode Reverse Recovery Time	$I_F = -3.0A, dI/dt = 100A/\mu s$		12		ns
Qrr	Body Diode Reverse Recovery Charge	$I_F = -3.0A, dI/dt = 100A/\mu s$		7.8		nC

A. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 1oz. Copper, in a still air environment with $T_A = 25^{\circ}C$. The value in any given application depends on the user's specific board design.

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

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

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 $<300\mu s$ 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 1in² FR-4 board with 1oz. Copper, assuming a maximum junction temperature of $T_{J(MAX)} = 150^{\circ}C$. The SOA curve provides a single pulse rating.

TYPICAL ELECTRICAL AND THERMAL CHARACTERIS

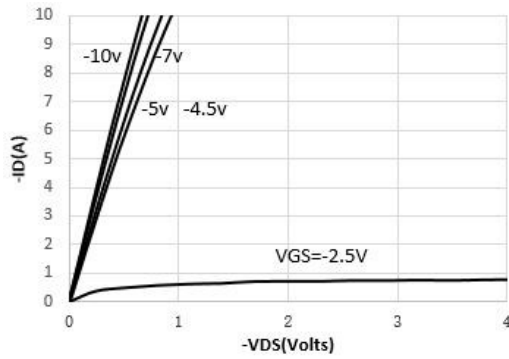


Figure 1: On-Region Characteristics (Note E)

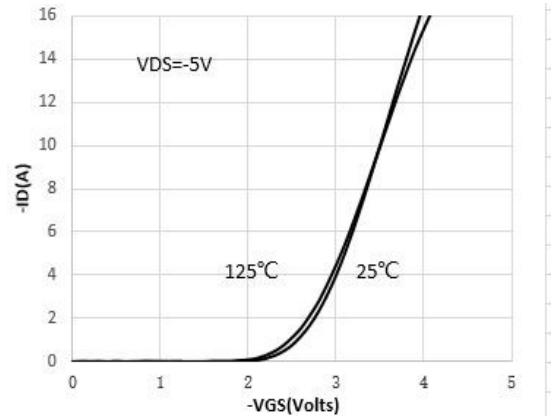


Figure 2 Transfer Characteristics (Note E)

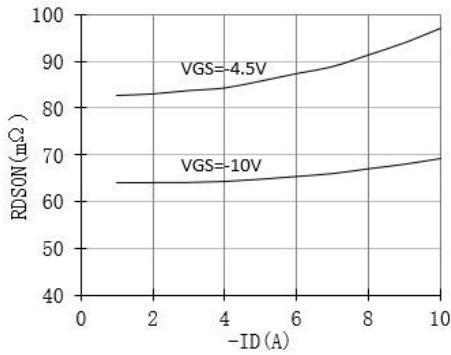


Figure 3: On-Resistance vs. Drain Current and Gate Voltage (Note E)

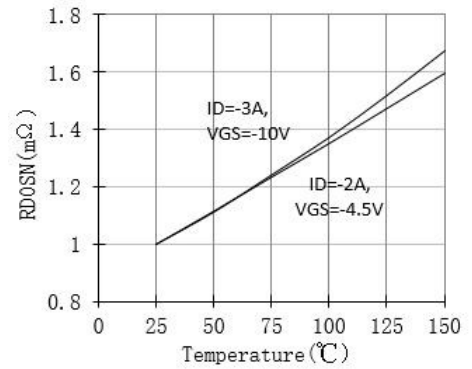


Figure 4: On-Resistance vs. Junction Temperature (Note E)

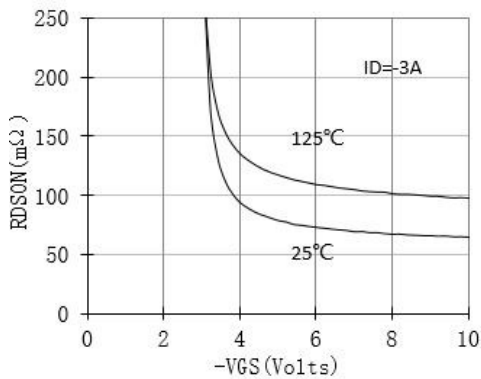


Figure 5: On-Resistance vs. Gate-Source Voltage(Note E)

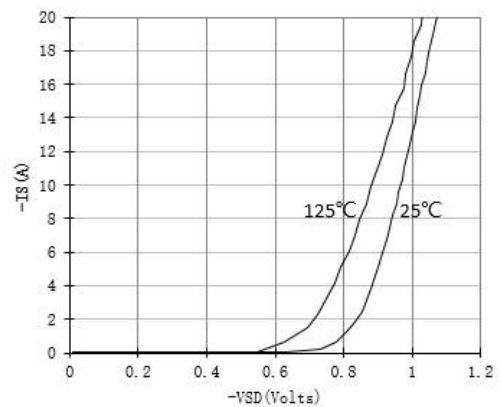


Figure 6: Body-Diode Characteristics (Note E)

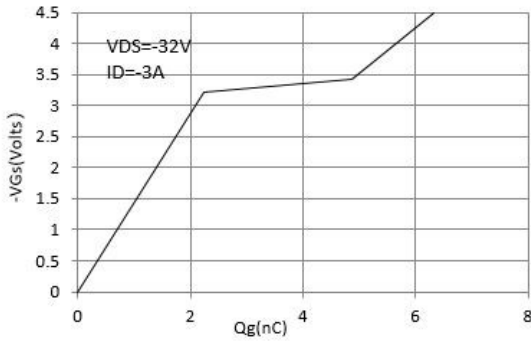


Figure 7: Gate-Charge Characteristics

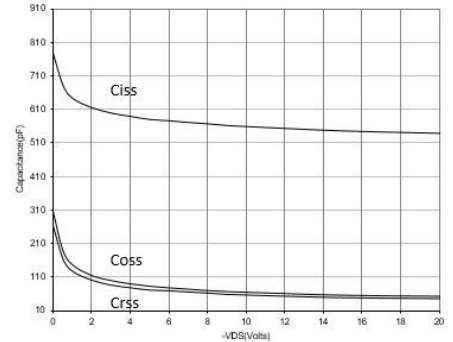


Figure 8: Capacitance Characteristics

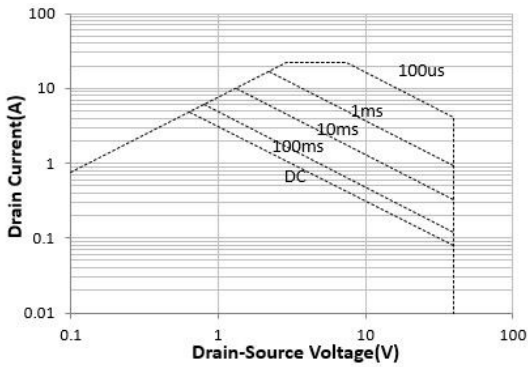


Figure 9: Maximum Forward Biased Safe Operating Area

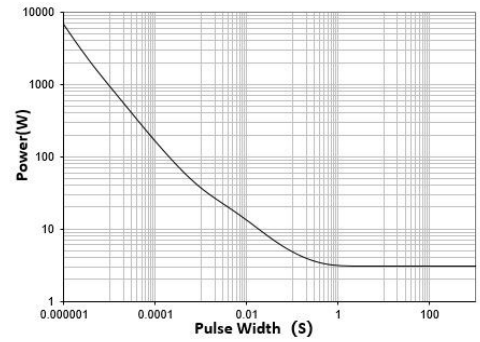


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

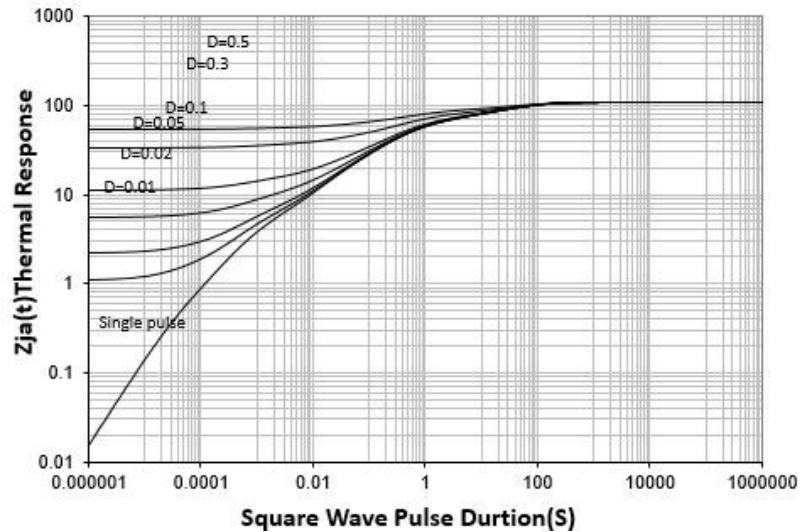


Figure 11: Maximum Transient Thermal Impedance (Note E)

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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