

BRCS3400MCQ

Rev. A Jun.-2022

/ Descriptions

SOT23-3 N MOS N - CHANNEL MOSFET in a SOT23-3 Plastic Package.

/ Features

$V_{DS} (V) = 30V$

$I_D = 5.8 A (V_{GS} = 10V)$

$R_{DS(ON)} < 32m (V_{GS} = 10V)$

$R_{DS(ON)} < 36m (V_{GS} = 4.5V)$

$R_{DS(ON)} < 56m (V_{GS} = 2.5V)$

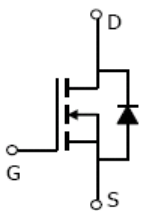
AEC-Q101
HF Product.

Qualified to AEC-Q101 Standards for High Reliability,

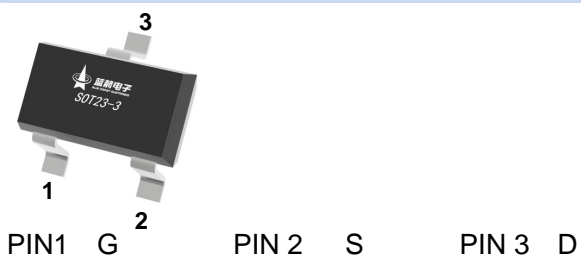
/ Applications

This device is suitable for use as a load switch or in PWM applications, Meet the stringent requirements of automotive applications.

/ Equivalent Circuit



/ Pinning



/ Marking

Marking	QA0H
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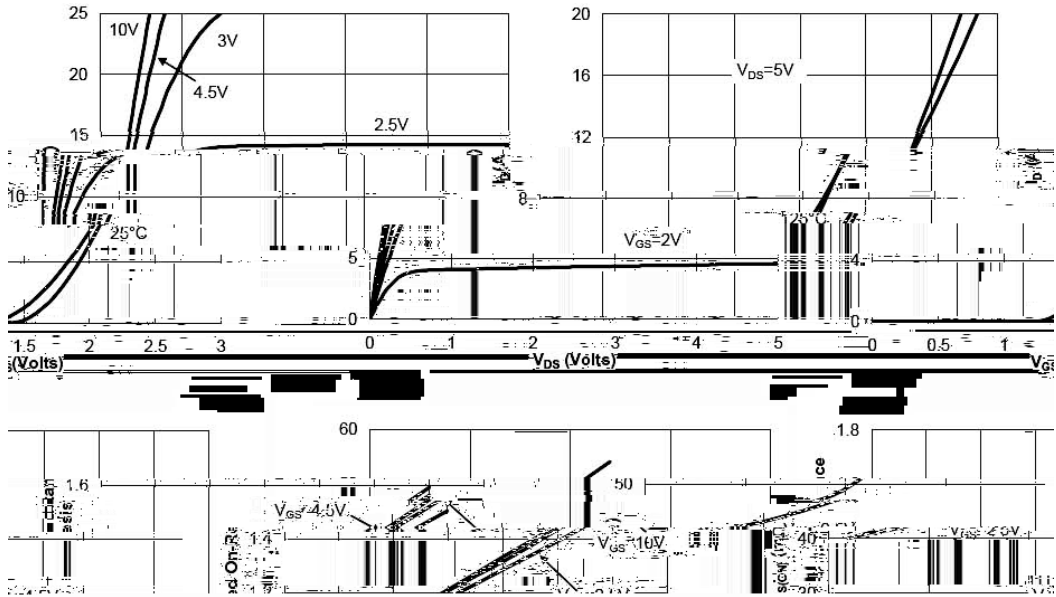
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Drain Current – Continuous	I_D	5.8	A
Drain Current- Continuous	$I_D(T_a=70^\circ\text{C})$	4.9	A
Pulsed Drain Current	I_{DM}	30	A
Gate-Source Voltage	V_{GS}	± 12	V
Total Power Dissipation	P_D	1.4	W
Total Power Dissipation	$P_D(T_a=70^\circ\text{C})$	1.0	W
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-55 to 150	

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain–Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=24V$ $V_{GS}=0V$			1	μA
		$V_{DS}=24V$ $V_{GS}=0V$ $T_J=55$			5	μA
Gate–Body Leakage.	I_{GSS}	$V_{GS}=\pm 12V$ $V_{DS}=0V$			± 0.1	μA
On–State Drain Current	$I_{D(on)}$	$V_{GS}=4.5V$ $V_{DS}=5V$	30			A
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	0.65	1.1	1.45	V
Static Drain–Source On–Resistance	$R_{DS(on)(1)}$	$V_{GS}=10V$ $I_D=5.8A$		29	32	m
	$R_{DS(on)(2)}$	$V_{GS}=10V$ $I_D=5.8A$ $T_J=125$			39	
	$R_{DS(on)(3)}$	$V_{GS}=4.5V$ $I_D=5A$		32	36	
	$R_{DS(on)(4)}$	$V_{GS}=2.5V$ $I_D=4A$		40	56	
Forward Transconductance	g_{FS}	$V_{DS}=5V$ $I_D=5A$	10	15		S
Drain–Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=1A$		0.77	1	V
Input Capacitance	C_{iss}	$V_{DS}=15V$ $V_{GS}=0V$ $f=1MHz$		823	1030	pF
Output Capacitance	C_{oss}			99		

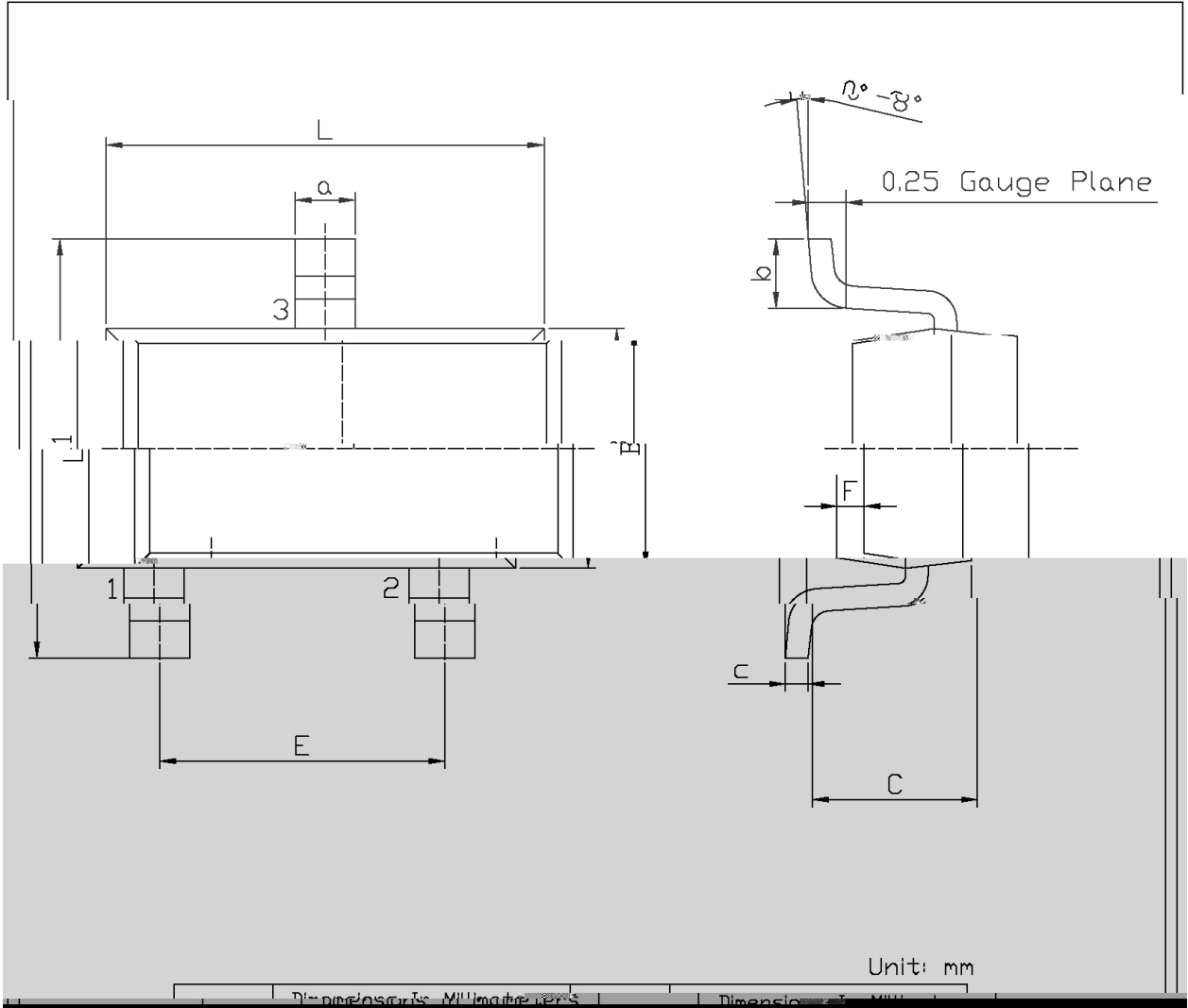
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Capacitance	C_{iss}	$V_{DS}=15V$ $V_{GS}=0V$ $f=1MHz$		823	1030	pF
Output Capacitance	C_{oss}			99		
Reverse Transfer Capacitance	C_{rss}			77		
Gate resistance	R_g	$V_{GS}=0V$ $V_{DS}=0V,$ $f=1MHz$		1.2	3.6	
Total Gate Charge	Q_g	$V_{GS}=4.5V,$ $V_{DS}=15V,$ $I_D=5.8A$		9.7	12	nC
Gate Source Charge	Q_{gs}			1.6		
Gate Drain Charge	Q_{gd}			3.1		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $R_L=2.7$ $V_{DS}=15V$ $R_{GEN}=3$		3.3	5	ns
Turn-On Rise Time	t_r			4.8	7	
Turn-Off Delay Time	$t_{d(off)}$			26.3	40	
Turn-Off Fall Time	t_f			4.1	6	
Body Diode Reverse Recovery Time	t_{rr}	$I_F=5A$ $di/dt=100A/s$		16	20	ns
Body Diode Reverse Recovery Charge	Q_{rr}	$I_F=5A$ $di/dt=100A/s$		8.9	12	nC

/ **Electrical Characteristic Curve**



/ Package Dimensions

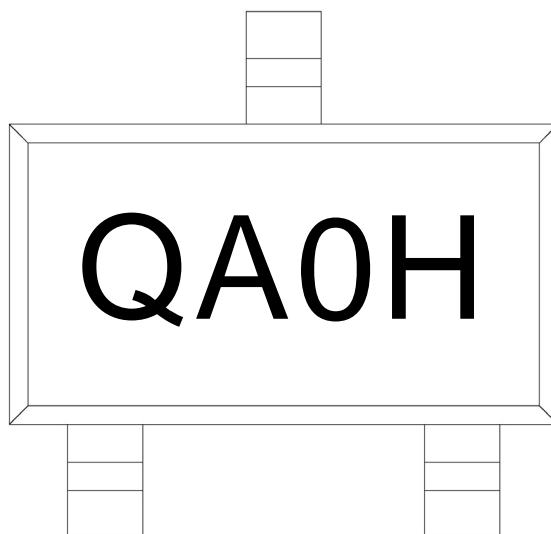


Dimensions: Millimeters

Dimension	Symbol	Value
Length	L	
Width	a	
Height	B	
Distance between mounting points	E	
Package thickness	C	
Distance from mounting point to center	F	

Unit: mm

/ Marking Instructions



Q

A0

H

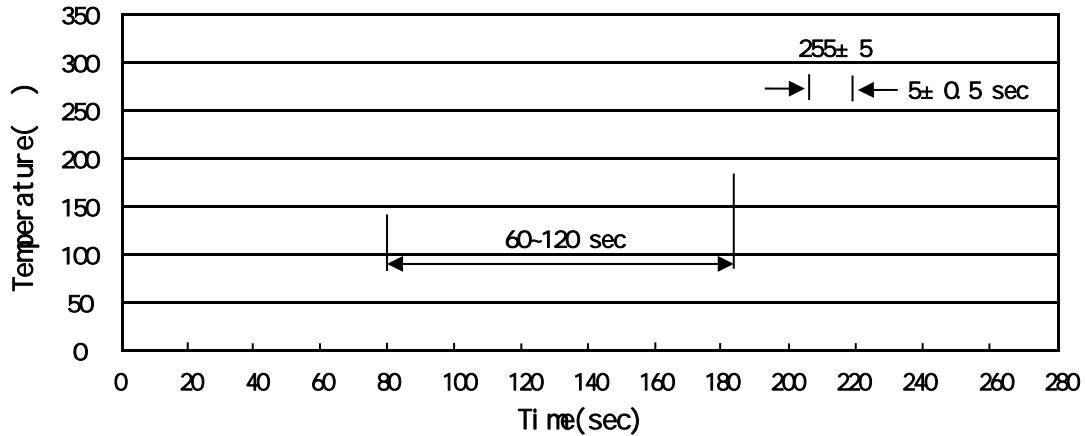
Note:

Q: Automobile halogen-free product Code

A0: Product Type Code

H: Company Code

() / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- 1 150 200 60 120sec; 1.Preheating:150~200 , Time:60~120sec.
- 2 255±5 5±0.5sec; 2.Peak Temp.:255±5 , Duration:5±0.5sec.
- 3 2 10 /sec. 3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

260±5 10±1 sec. Temp.:260±5 Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension (unit mm ³)		
	Units/Reel /	Reels/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Reel	Inner Box	Outer Box
SOT23-3	3,000	10	30,000	4	120,000	7 x8	210x205x205	445x230x435

/ Notices