BRCS3415MCQ
Rev.A Sep.-2023

蓝箭电子
BLUE ROCKET ELECTRONICS
DATA SHEET

/ Descriptions

SOT23-3 ṂṂ Ŀ S ᦖ ʆ ῷ Ẕ ⁊

P- CHANNEL MOSFET in a SOT23-3 Plastic Package.

/ Features

$R_{DS(ON)}$< 41 mΩ,V_{GS}= -4.5V

$R_{DS(ON)}$< 53 mΩ,V_{GS}= -2.5V

ٵ ᵀ DHF0T434 ‰´ ⲅ ᴵ ˛ ό ˪ ∂ ˛ ῃ ғ ᵝ Qualified to AEC-Q101 Standards for High Reliability, HF Product.

/ Applications

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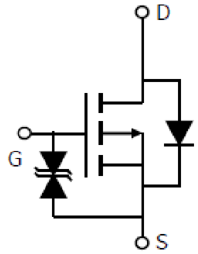
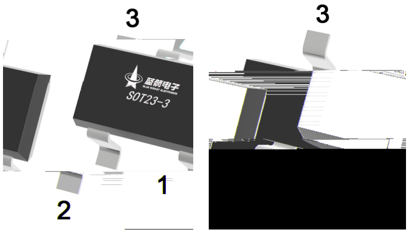
Load switch ˛ Battery protection, Meet the stringent requirements of automotive applications.

/ Equivalent Circuit



/ Pinning



PIN1 χ G PIN 2 χ S PIN 3 χ D

/ Marking

Marking	AFQ

/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	8	V
Drain Current-Continuous @ T_C =25°C	I_D	-4	A
Drain Current-Pulsed Note1 @ T_C =25°C	I_{DM}	-30	A
Maximum Power Dissipation	P_D	1.5	W
Storage Temperature Range	T_{STG}	-55 to +150	C
Operating Junction Temperature Range	T_J	-55 to +150	C
Thermal Resistance, Junction-to-Ambient Note2	$R_{\theta JA}$	100	C/W

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	B_{VDSS}	V_{GS}=0V I_{DS} =-250μA	-20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V V_{GS}=0V			-1	uA
Gate-Body Leakage	I_{GSS}	V_{GS}=±8V V_{DS}=0V			10	uA
Gate Threshold Voltage	V_{TH}	V_{DS}=V_{GS} I_{DS}=-250μA	-0.3	-0.6	-0.9	V
Drain-Source On-State Resistance	R_{DS}	V_{GS}=-4.5V I_{DS}=-4A		35	41	mΩ
		V_{GS}=-2.5V I_{DS}=-4A		45	53	
Input Capacitance	C_{iss}	V_{DS}=-10V V_{GS}=0V f=1MHz		750		pF
Output Capacitance	C_{oss}			110		
Reverse Transfer Capacitance	C_{rss}			80		
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=-10V V_{GS}=-4.5V R_G=3 R_L=2.5		15.6		ns
Rise Time	t_r			11.2		
Turn-Off Delay Time	$t_{d(off)}$			23.1		
Fall Time	t_f			32.7		
Total Gate Charge at 10V	Q_g	V_{DS}=-10V I_{DS}=-4A V_{GS}=-4.5V		10		nC
Gate to Source Gate Charge	Q_{gs}			1.5		
Gate to Drain “Miller” Charge	Q_{gd}			2.2		
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_{DS}=-1A		-0.7		V

Notes:

1. Pulse Test: Pulse Width 300μs, Duty Cycle 2%.
2. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins.RθJC is guaranteed by design while RθCA is determined by the user's board design. RθJA shown below for single device operation on FR-4 in still air.

/ Electrical Characteristic Curve

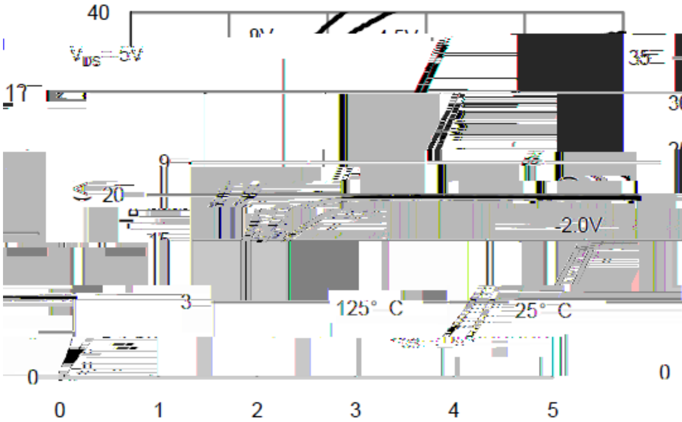


Fig 1: On-Region Characteristics (Note E)

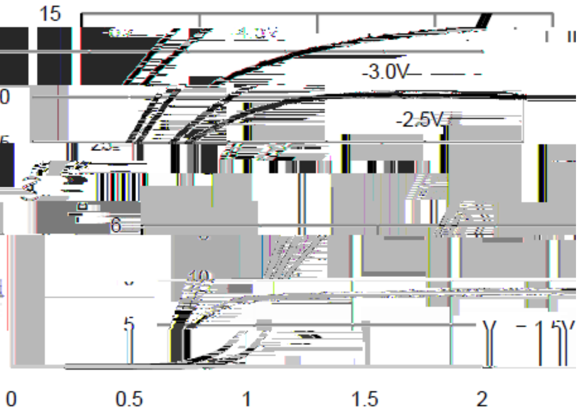
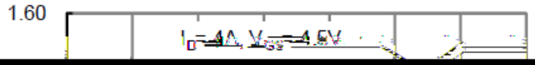


Figure 2: Transfer Characteristics (Note E)



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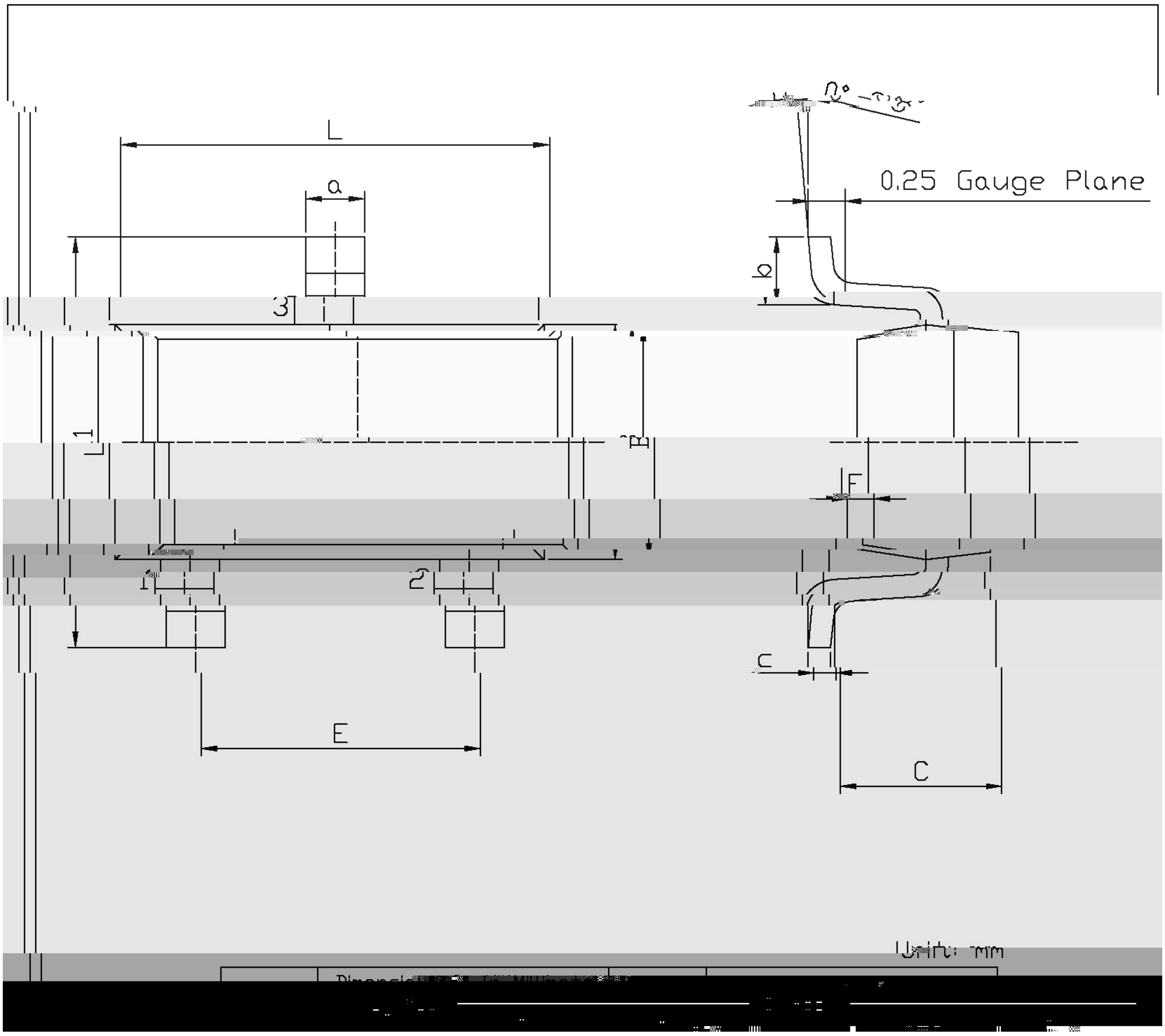
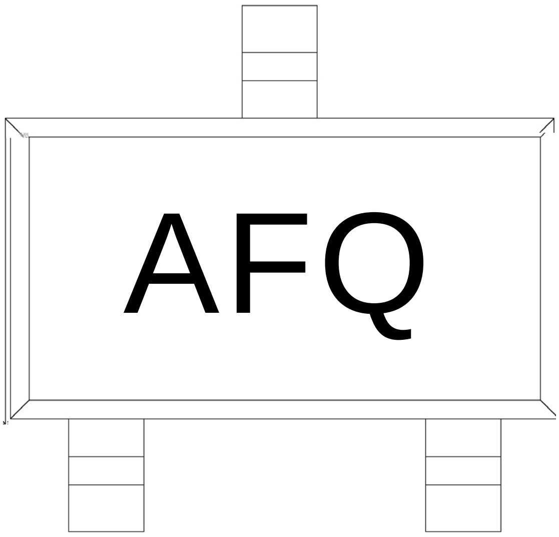
/ Package Dimensions



/ Marking Instructions



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AF:	ѭ ʓ ᴺ Пƅ
Note:	
Q:	Automobile halogen-free product Code
AF χ	Product Type

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

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ب ˝ χ	Note:
1 ỉ ♬ □ ŷ 150 Ḱ 200 ɫ ı ̀H ڗ 60 Ḱ 120sec;	1.Preheating:150~200 ɫ , Time:60~120sec.
2 Š Ȫ □ ŷ 255 ° 5 ɫ ı ̀H ڗ 'Y ﾑ ᄣ 5 ° 0.5sec;	2.Peak Temp.:255 ° 5 ɫ , Duration:5 ° 0.5sec.
3 ì ˙ ˥ ˛ ɔ ቇ ŷ ᄣ 2 Ḱ 10 ɫ /sec.	3. Cooling Speed: 2~10 ɫ /sec.

/ Resistance to Soldering Heat Test Conditions

□ ŷ χ 260 ° 5 ɫ ̀H ڗ χ 10 ° 1 sec. Temp.:260 ° 5 ɫ Time:10 ° 1 sec

/ Packaging SPEC.

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Package Type	Units	Dimension	(unit mm^3