

# BRCS400P06YBQ

Rev.A Aug.-2024

## / Descriptions

PDFN 3×3A-8L P MOS

P-Channel Enhancement Mode Field Effect Transistor in a PDFN3×3A-8L Plastic Package.

## / Features

$V_{DS} (V) = -60V$   $I_D = -23A (V_{GS} = \pm 20V)$

$R_{DS(ON)} @ -10V \leq 40m\Omega$  (Typ.  $36m\Omega$ )

$R_{DS(ON)} @ -4.5V \leq 50m\Omega$  (Typ.  $44m\Omega$ )

AEC-Q101

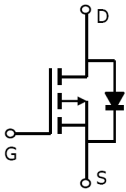
。 Qualified to AEC-Q101 Standards for High Reliability,

HF Product.

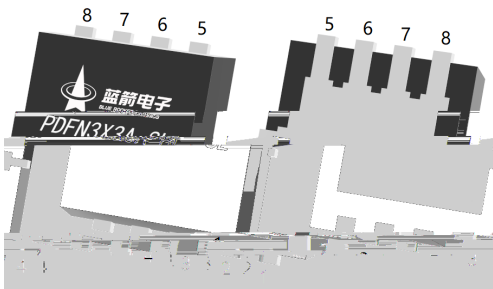
## / Applications

Notebook AC-in load switch, Battery protection charge/discharge, Meet the stringent requirements of automotive applications.

## / Equivalent Circuit



## / Pinning



出脚	定义
Pin1	S
Pin2	S
Pin3	S
Pin4	G
Pin5	D
Pin6	D
Pin7	D
Pin8	D

## / Marking

See Marking Instructions.

## / Absolute Maximum Ratings(Ta=25 )

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DSS}$	-60	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V
Continuous Drain Current	$I_D (T_c=25^\circ C)$	-23	A
Pulsed Drain Current	$I_{DM}$	-73	A
Avalanche Current	$I_{AS}$	17.5	A
Avalanche energy L=0.5mH	$E_{AS}$	320	mJ
Power Dissipation for Single Operation	$P_D (T_c=25^\circ C)$	35	W
Maximum Junction Temperature	$T_j$	150	
Storage Temperature Range	$T_{stg}$	-55 150	
Thermal Resistance-Junction to Ambient	$R_{\theta JA}$	65	/W
Thermal Resistance- Junction-to-Case	$R_{\theta JC}$	3.6	/W

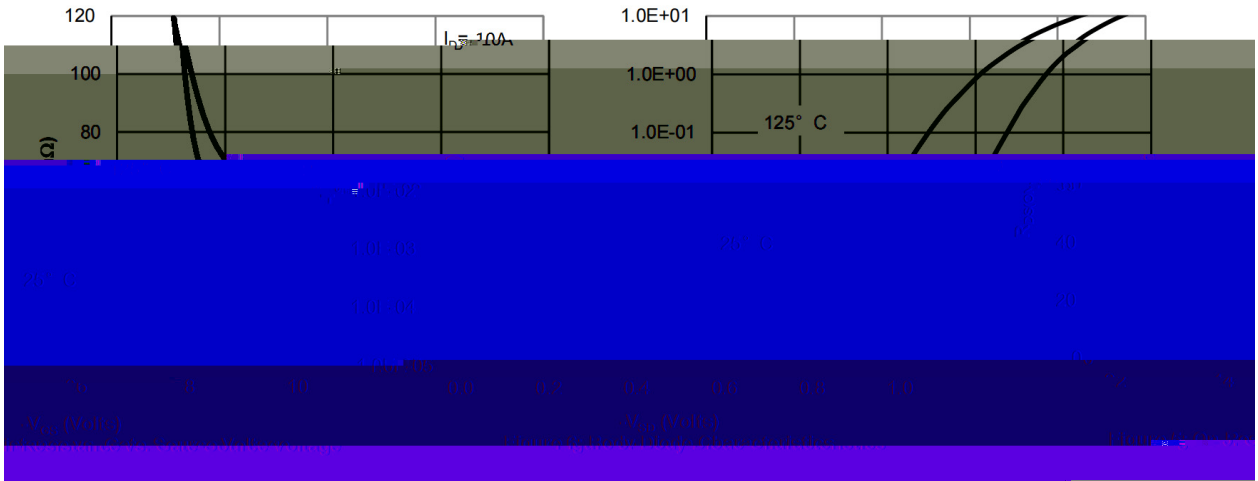
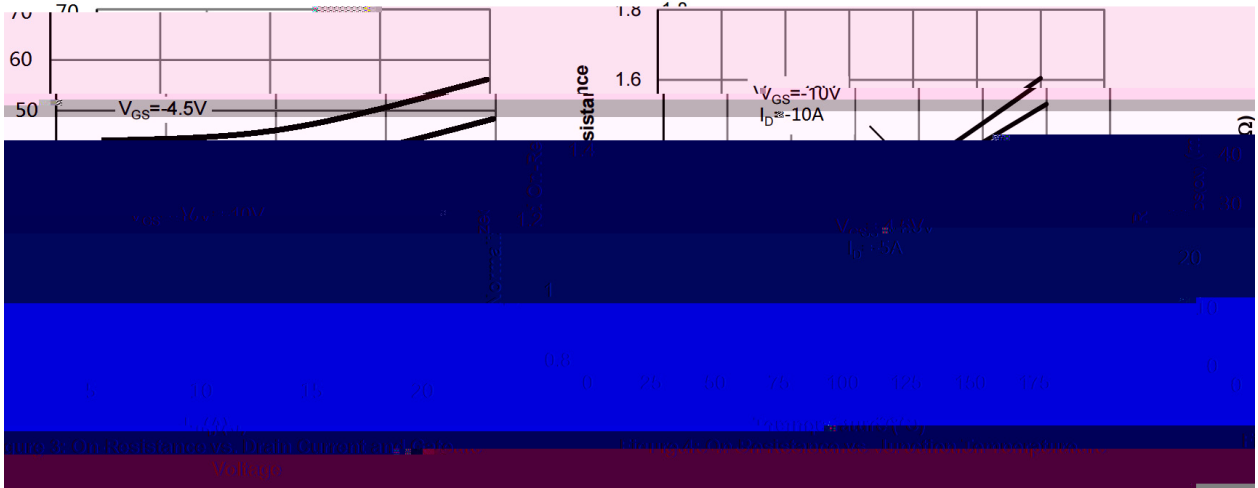
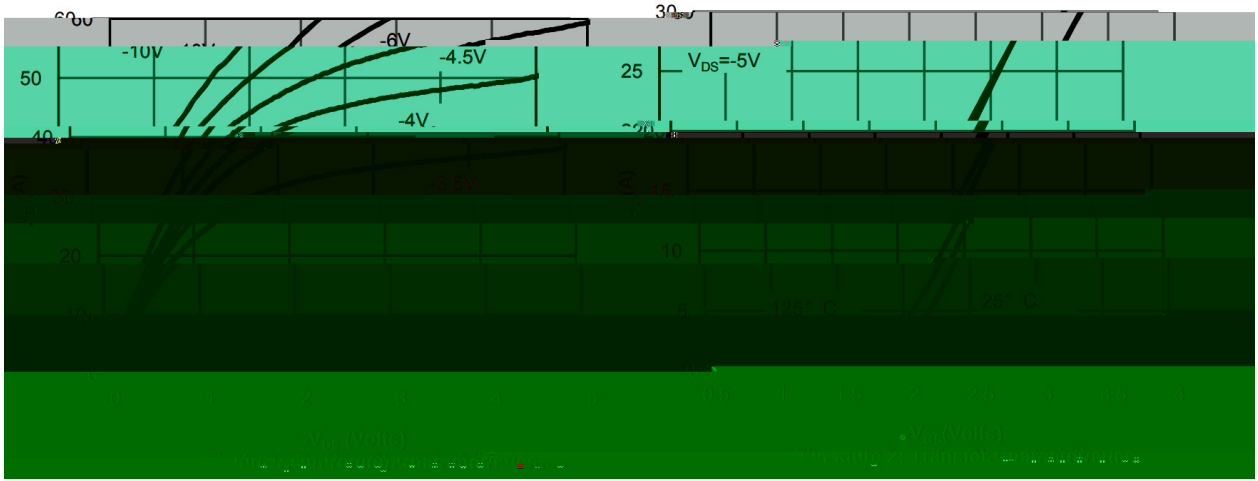
## / Electrical Characteristics(Ta=25 )

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D=-250\mu A$ $V_{GS}=0V$	-60			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-60V$ $V_{GS}=0V$			-1.0	
Gate-Body leakage current	$I_{GSS}$	$V_{DS}=0V$ $V_{GS}=\pm 20V$			$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu A$	-1.0	-	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10V$ $I_D=-10A$		36	40	m
		$V_{GS}=-4.5V$ $I_D=-5A$		44	50	
Diode Forward Voltage	$V_{SD}$	$I_S=-1A$ $V_{GS}=0V$			-1.0	V
Gate Resistance	$R_g$	$V_{GS}=0V$ $V_{DS}=0V$ $f=1MHz$		5.0		$\Omega$
Input Capacitance	$C_{iss}$	$V_{GS}=0V$ $V_{DS}=-15V$ $f=1MHz$		2500		pF
Output Capacitance	$C_{oss}$			180		
Reverse Transfer Capacitance	$C_{rss}$			120		

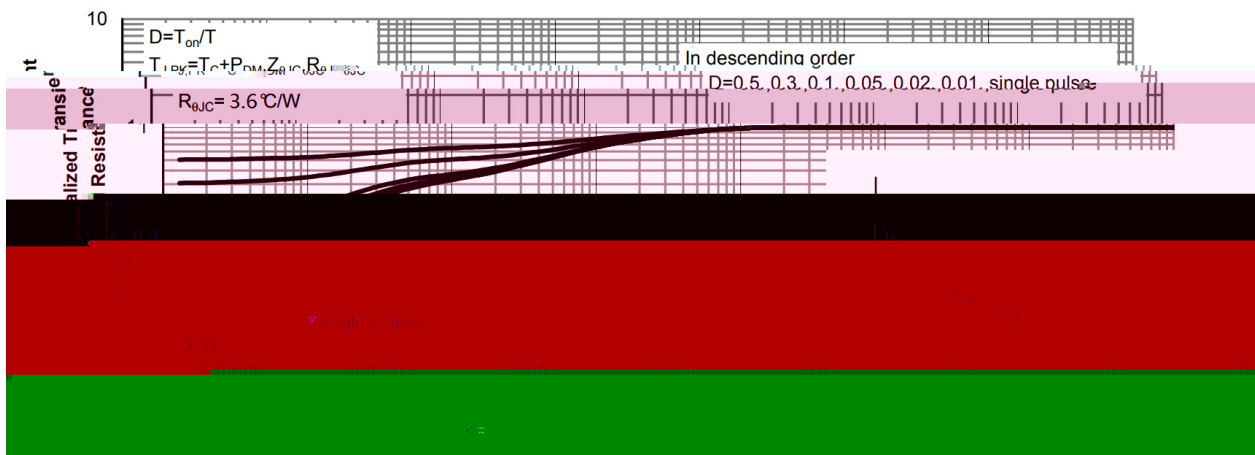
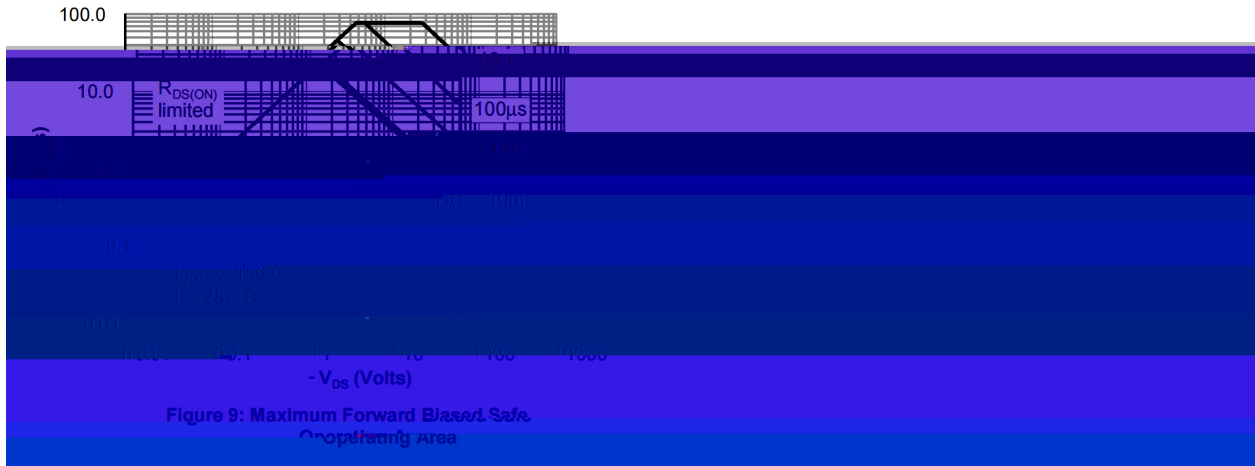
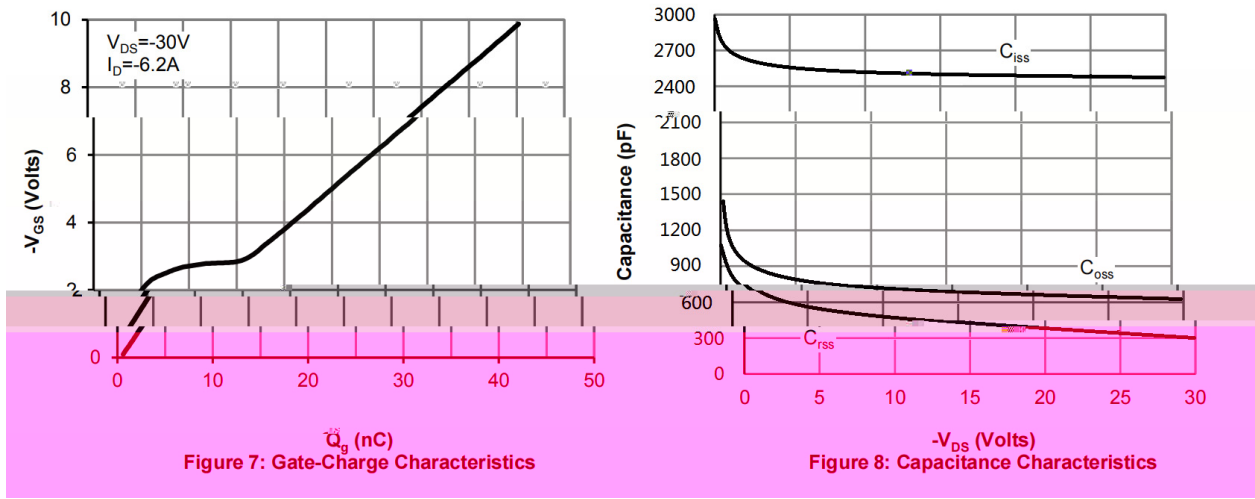
**/ Electrical Characteristics(Ta=25 )**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=-10V$ $V_{DS}=-30V$ $I_D=-6.2A$		46.5		nC
Total Gate Charge	$Q_{g(4.5V)}$			22.7		
Gate-Source Charge	$Q_{gs}$			9.1		
Gate-Drain Charge	$Q_{gd}$			9.2		
Turn-on Delay Time	$t_{d(ON)}$	$V_{GS}=-10V$ $V_{DS}=-30V$ $R_L=4.7\Omega$ $R_{GEN}=3\Omega$		9.8		ns
Turn-on Rise Time	$t_r$			6.1		
Turn-off Delay Time	$t_{d(OFF)}$			44		
Turn-off Fall Time	$t_f$			12.7		

/ Electrical Characteristic Curve



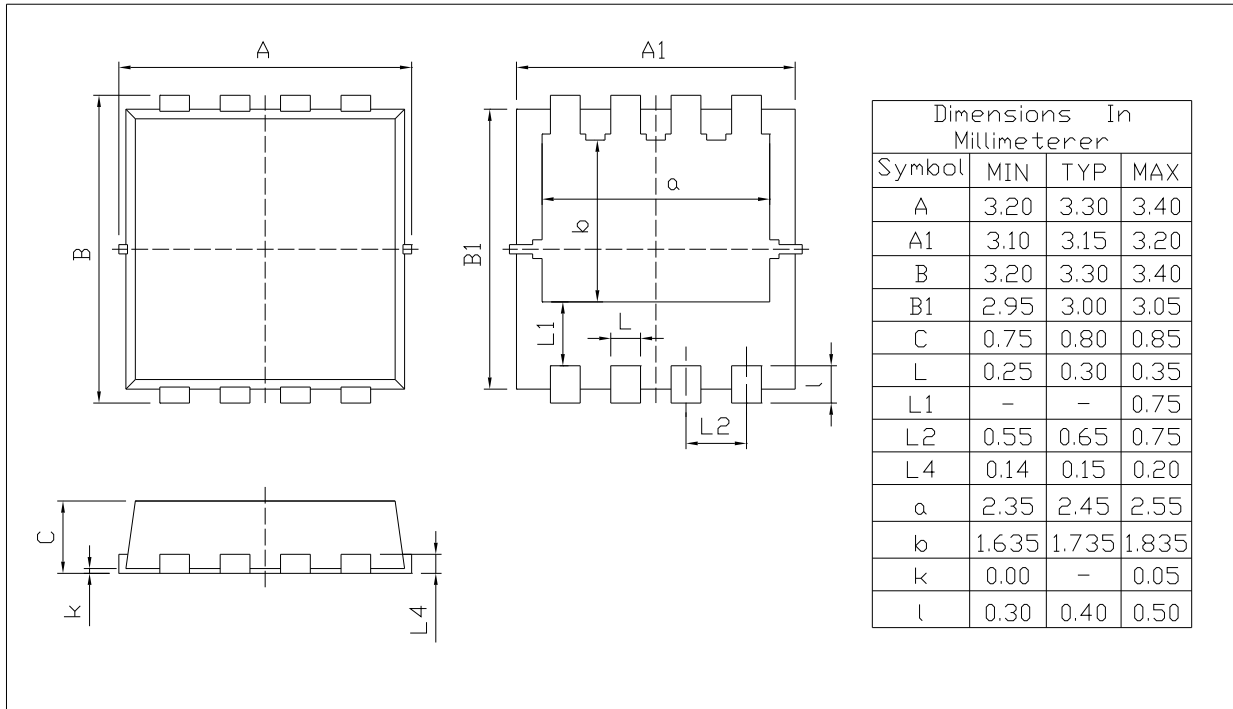
/ Electrical Characteristic Curve



**/ Package Dimensions**

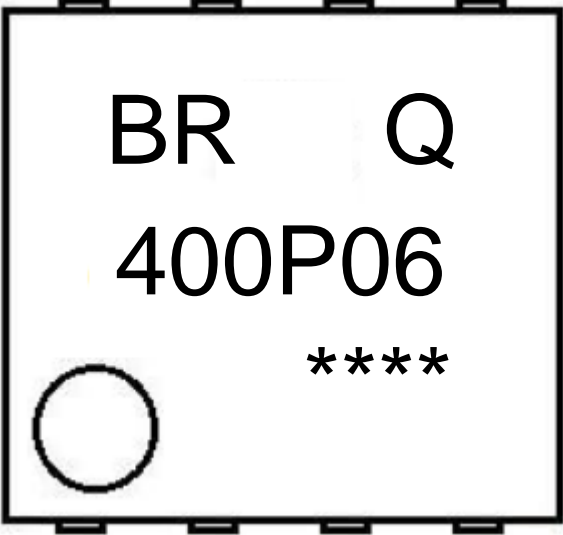
PDFN3X3A-8L

Unit:mm



Rev.00 202011

/ Marking Instructions



BR

Q

400P06

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Note:

- BR: Company Code
- Q: Automobile halogen-free product Code
- 400P06: Product Type Code
- \*\*\*\*: Lot No. Code, code change with Lot No

# **BRCS400P06YBQ**

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