

BRCS120N06YBQ

Rev.A Jul.-2022

/ Descriptions

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

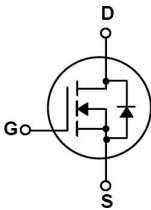
/ Features

- $V_{DS} (V) = 60V$
- $I_D = 24 A (V_{GS} = \pm 20V)$
- $R_{DS(ON)} @ 10V \leq 13mR (Typ. 11.5mR)$
- HF Product.
- Qualified to AEC-Q101 Standards for High Reliability,

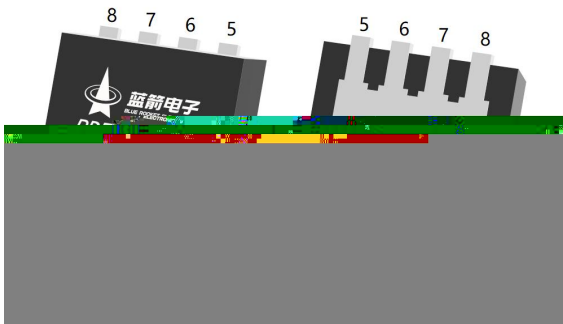
/ Applications

These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies, 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.



Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	60	V
Drain Current		$I_D(T_C=25^{\circ}\text{C})$	24	A
Drain Current - Pulsed		I_{DM}	90	A
Gate-Source Voltage		V_{GSS}	± 20	V
Single Pulsed Avalanche Energy		E_{AS}	70	mJ
Avalanche Current		I_{AS}	20	A
Power Dissipation		$P_D(T_C=25^{\circ}\text{C})$	24	W
Operating and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^{\circ}\text{C}$
Junction-to-Ambient	$t \leq 10$	$R_{\theta JA}$	30	$^{\circ}\text{C/W}$
Junction-to-Ambient	Steady-State		55	



Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	60	64		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V$ $V_{GS}=0V$			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	1.0	1.6	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=20A$		11.5	13	$m\Omega$
		$V_{GS}=4.5V$ $I_D=10A$		15.5	18	$m\Omega$
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=1A$			1.2	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		1010		pF
Output Capacitance	C_{oss}			250		
Reverse Transfer Capacitance	C_{rss}			280		
Gate resistance	R_g	$V_{GS}=0V$ $V_{DS}=0V$ $f=1MHz$		1.5		Ω
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V$ $V_{DS}=30V$ $I_D=13A$		13.5		nC
Total Gate Charge	$Q_{g(4.5V)}$			6.5		
Gate Source Charge	Q_{gs}			2.5		
Gate Drain Charge	Q_{gd}			3.0		

Turn-



/ Electrical Characteristic Curve

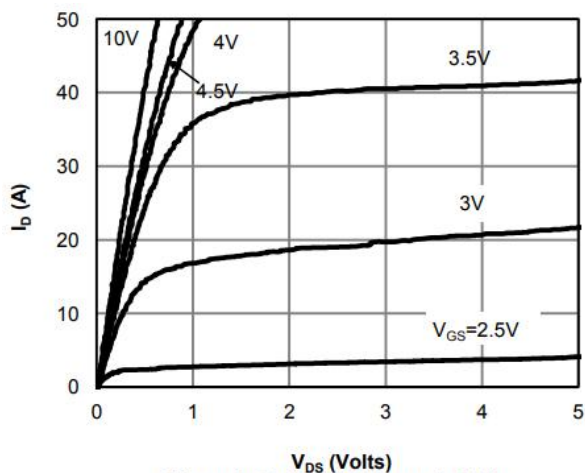


Figure 1: On-Region Characteristics

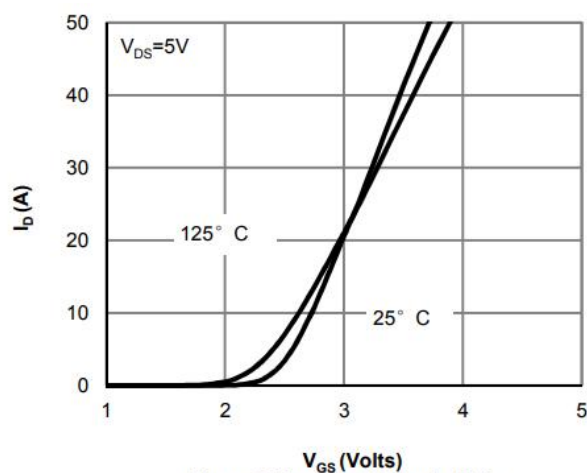
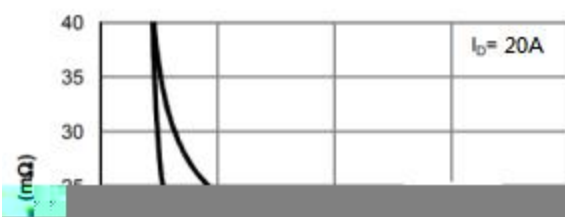
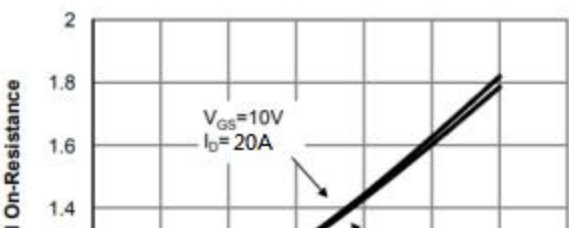
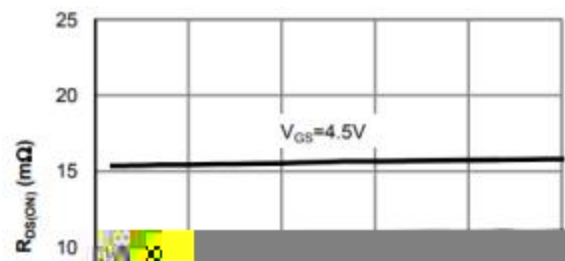
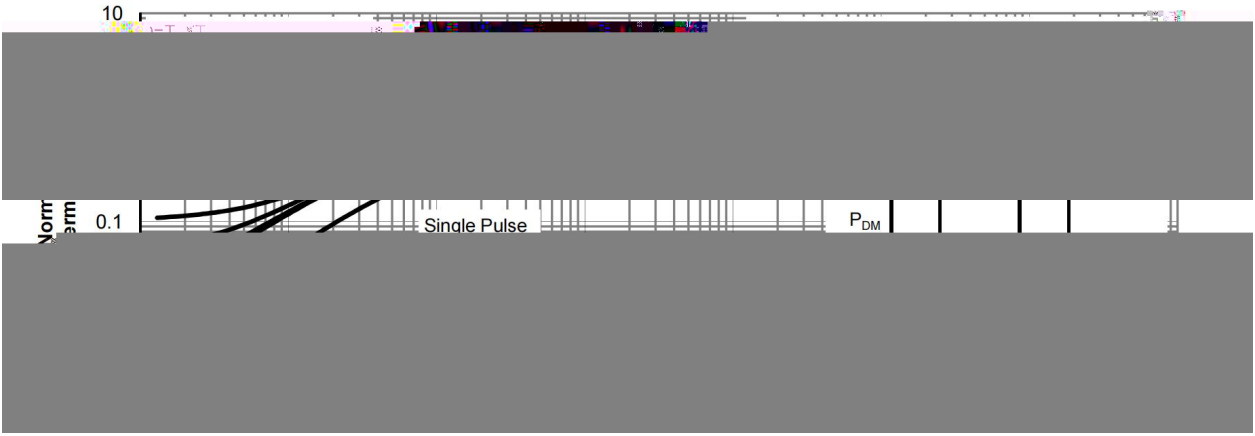
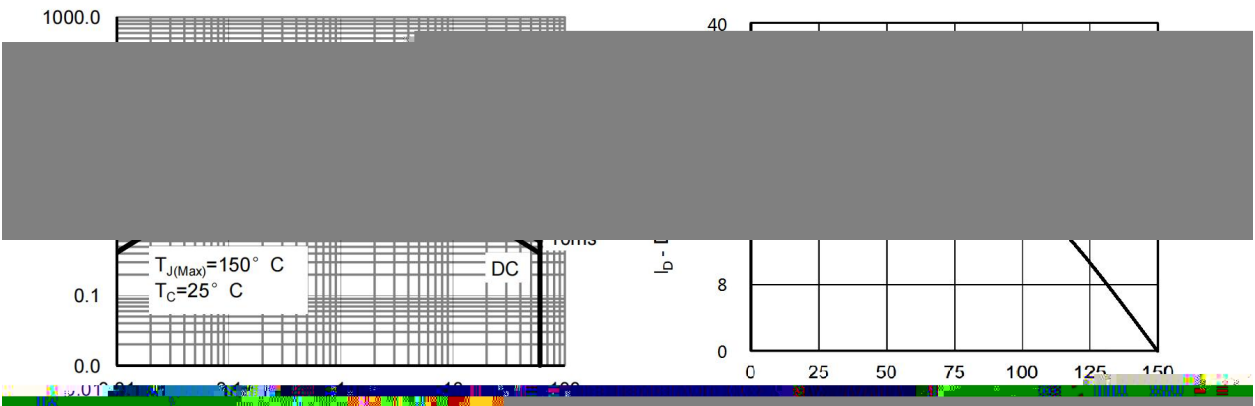
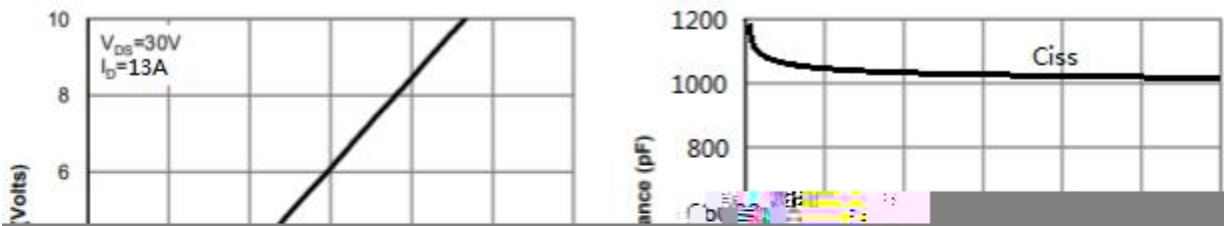


Figure 2: Transfer Characteristics





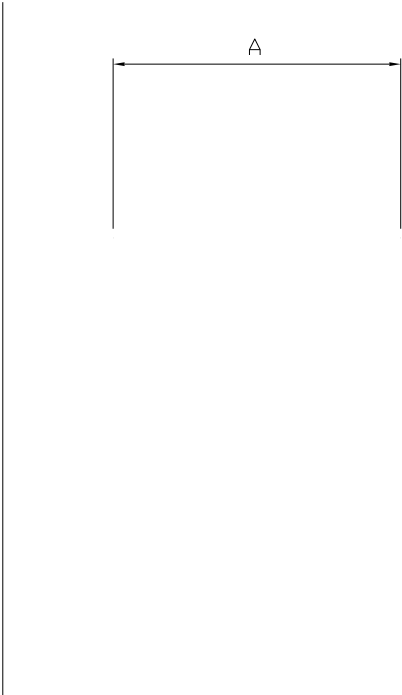
/ Electrical Characteristic Curve



/ Package Dimensions

PDFN3X3A-8L

Unit:mm



Rev.00 20201



/ Marking Instructions

BR Q
120N06

BR

Q

120N06

Note:

BR: Company Code

Q: Automobile halogen-free product Code

120N06: Product Type Code

*****: Lot No. Code, code change with Lot No



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