

BRCS250N03YA

Rev.A Feb.-2022

/ Descriptions

PDFN3×3-8L N MOS

Double N-CHANNEL MOSFET in a PDFN3×3-8L Plastic Package.

/ Features

N-channel

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

$I_D=20A$

$R_{DS(ON)}<25m\Omega$ ($V_{GS}=10V$)

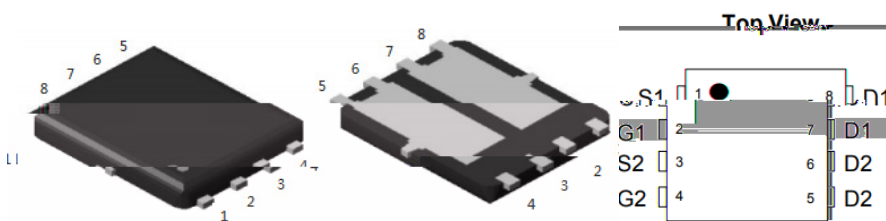
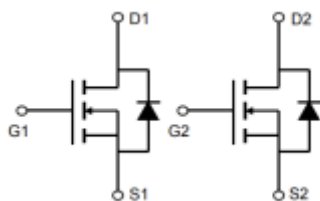
$R_{DS(ON)}<40m\Omega$ ($V_{GS}=4.5V$)

Halogen-free Product.

/ Applications

Intended for use in general purpose switching and phase control applications.

/ Equivalent Circuit



/ Marking

See Marking Instructions.

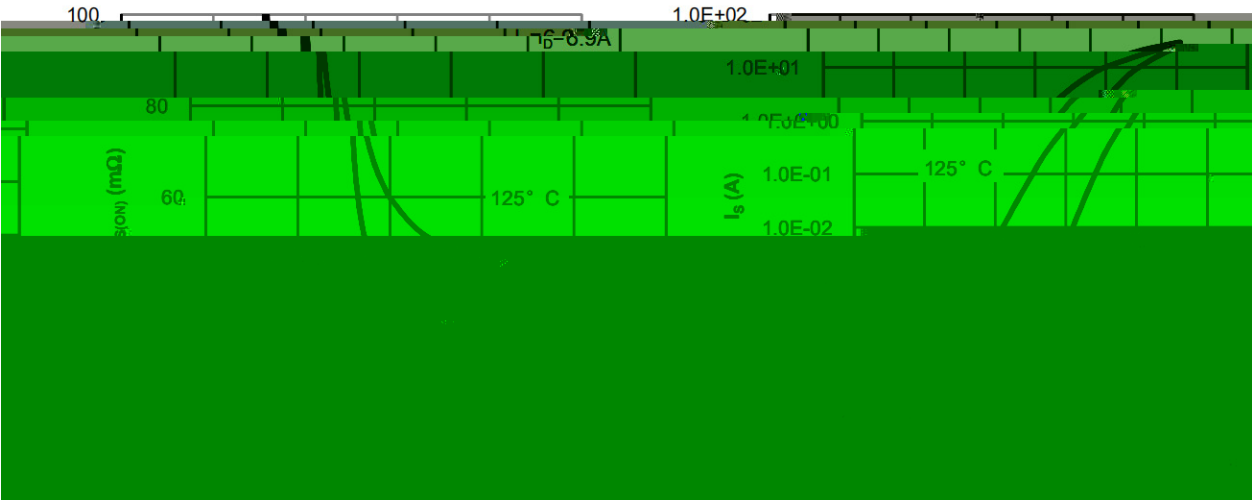
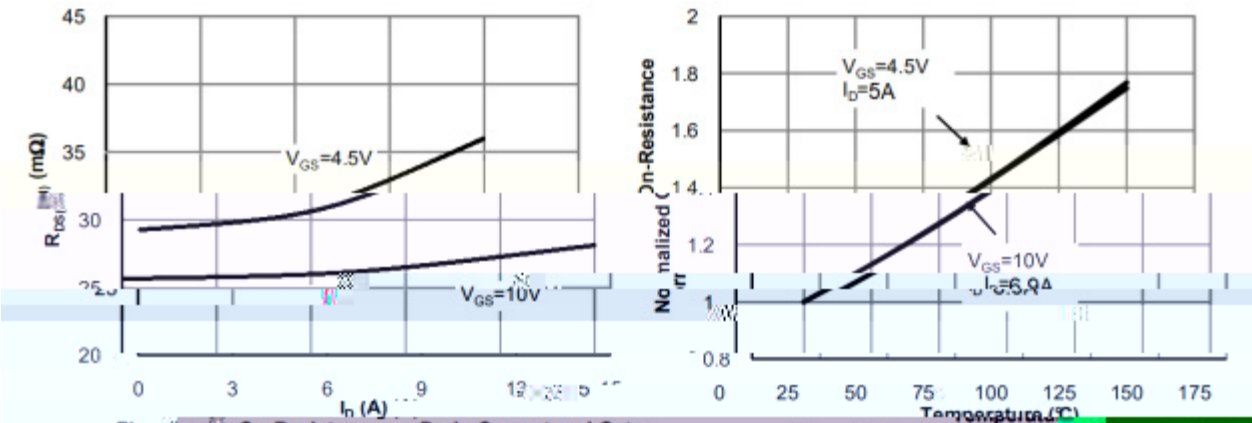
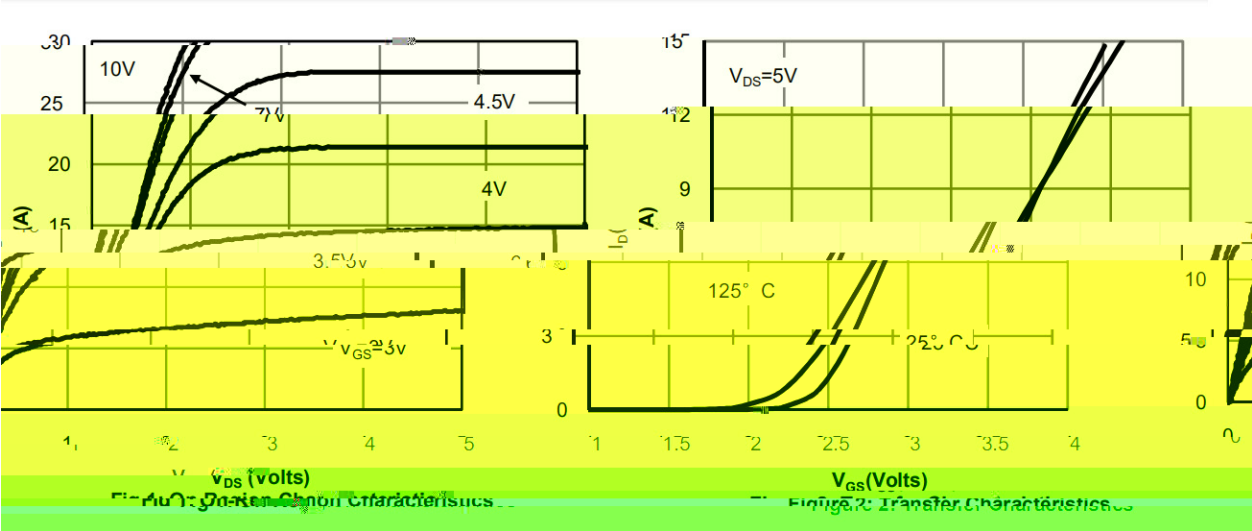
/ Absolute Maximum Ratings($T_A=25^\circ\text{C}$)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	$I_D (T_A=25^\circ\text{C})$	20	A
Power Dissipation	$P_D (T_A=25^\circ\text{C})$	11.2	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	
Maximum Junction-to-Case	$R_{\theta JC}(\text{Steady-State})$	11.2	/W
Maximum Junction-to-Ambient	$R_{\theta JA}(\text{Steady-State})$	45	/W

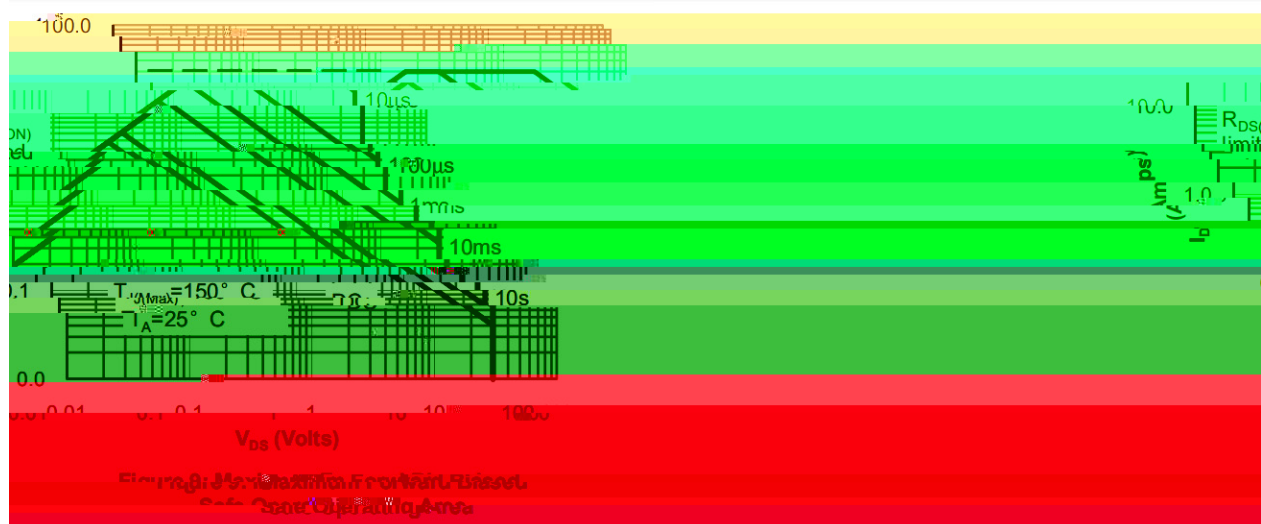
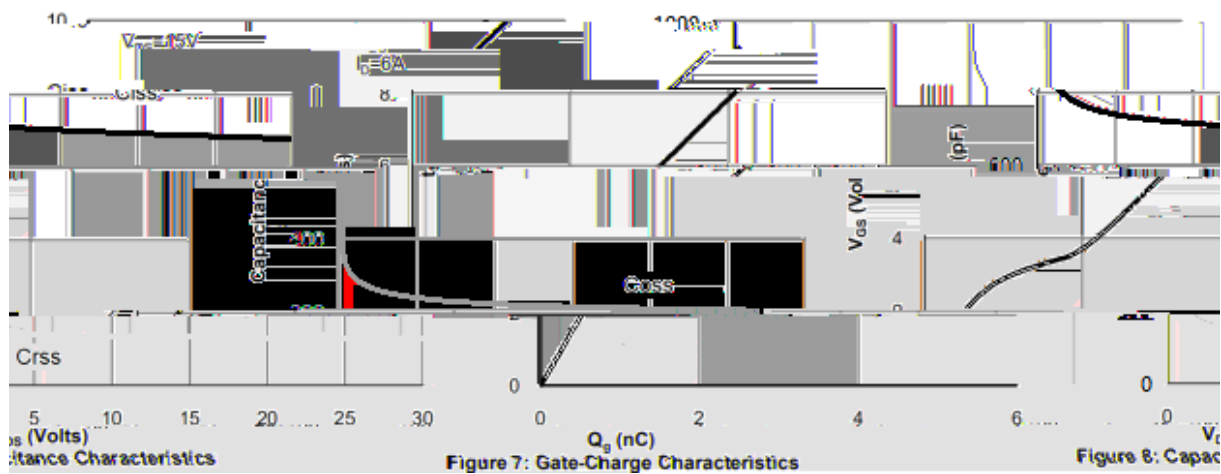
/ Electrical Characteristics($T_A=25^\circ\text{C}$)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0V$ $I_D=250\mu A$	30	35		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V$ $V_{GS}=0V$			1.0	μA
Gate-Body leakage current	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			100	nA
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	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=6.9A$		20	25	m Ω
		$V_{GS}=4.5V$ $I_D=5.0A$		28	40	m Ω
Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=1.0A$		0.78	1.2	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		690		pF
Output Capacitance	C_{oss}			200		pF
Reverse Transfer Capacitance	C_{rss}			130		pF
Gate resistance	R_g	$V_{DS}=0V$ $V_{GS}=0V$ $f=1.0MHz$		2.7		Ω
Total Gate Charge(10V)	Q_g	$V_{GS}=10V$ $V_{DS}=15V$ $I_D=6A$		5.2		nC
Total Gate Charge(4.5V)				2.5		nC
Gate-Source Charge	Q_{gs}			0.8		nC
Gate-Drain Charge	Q_{gd}			1.3		nC
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=15V$ $V_{GS}=10V$ $R_L=2.5\Omega$ $R_{GEN}=3\Omega$		4.5		ns
Turn-On Rise Time	t_r			2.5		ns
Turn-Off Delay Time	$t_{d(off)}$			14.5		ns
Turn-Off Fall Time	t_f			3.5		ns

Electrical Characteristic Curve



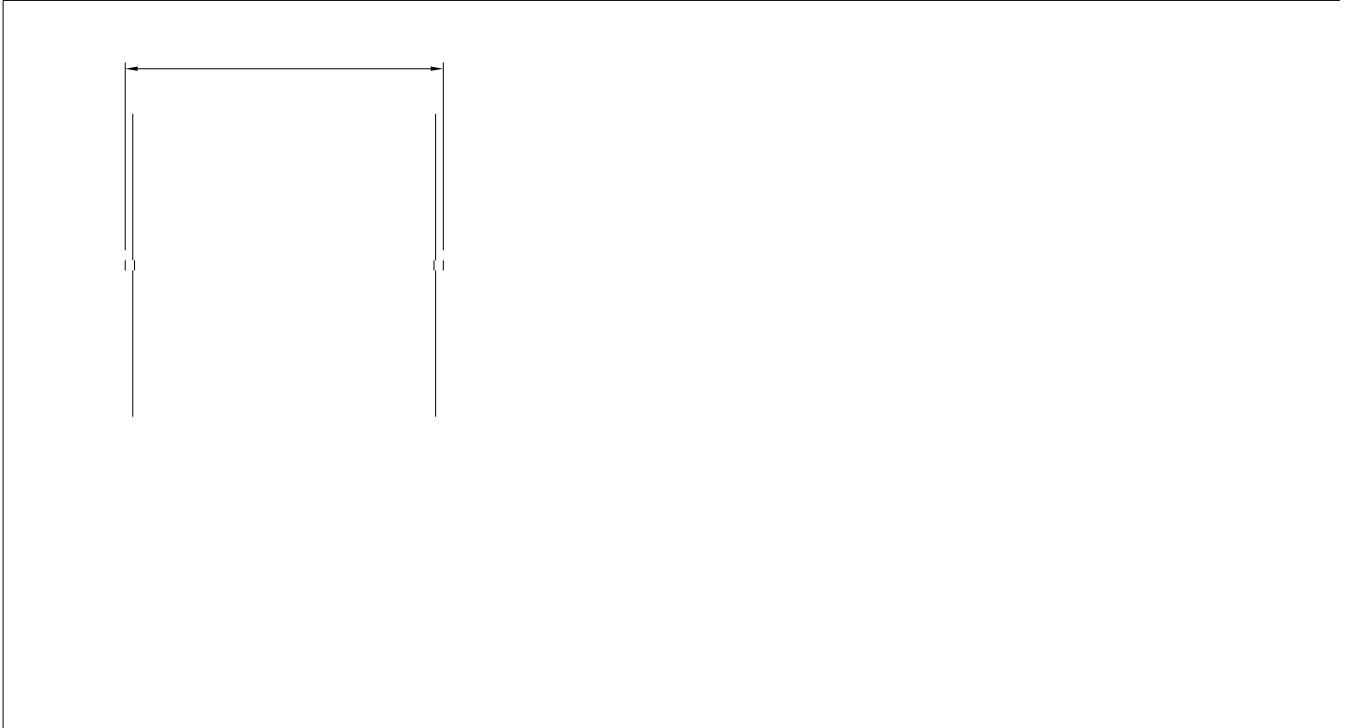
/ Electrical Characteristic Curve



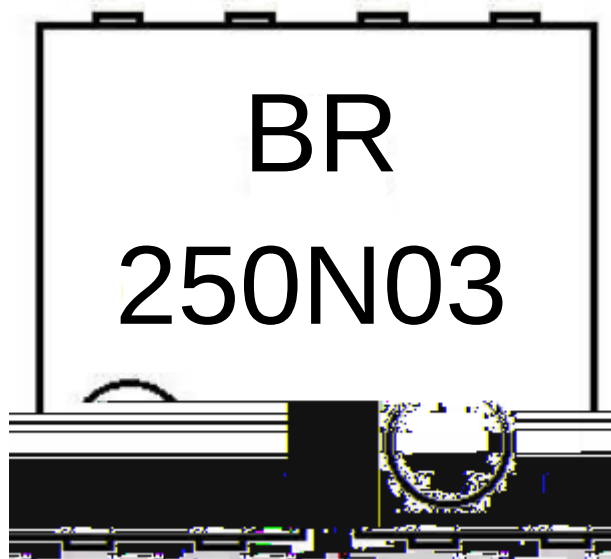
/ Package Dimensions

PDFN3X3-8L

Unit:mm



/ Marking Instructions



BR

250N03

Note:

BR: Company Code

250N03: Product Type Code

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

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

Note:

- | | | | |
|---|---------|-----------|---|
| 1 | 150 180 | 60 90sec; | 1.Preheating:150~180 , Time:60~90sec. |
| 2 | 245±5 | 5±0.5sec; | 2.Peak Temp.:245±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
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/ Packaging SPEC.

/ REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
PDFN 3 × 3-8L	5,000	2	10,000	6	60,000	13 ×12	360×360×50	380×335×366

/ Notices