

BRCS016N03ZC

Rev.A Dec.-2021



DATA SHEET

/ Descriptions

PDFN5×6 N-Channel MOSFET in a PDFN5×6 Plastic Package .

/ Features

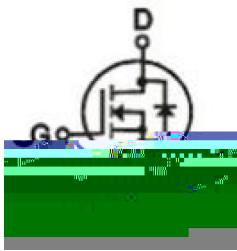
Low $R_{DS(ON)}$ to minimize conductive loss, low Gate Charge for fast switching, Low Thermal resistance, HF Product.

/ Applications

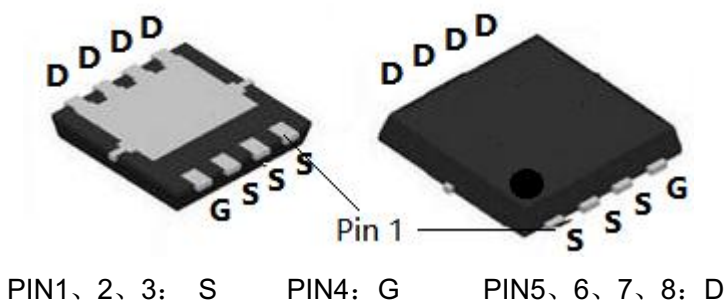
MB/NB/UMPC/VGA	Buck	-
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Battery Management, High Frequency Point-of-Load Synchronous Buck Converter for MB/NB/UMPC/VGA, Networking DC-DC Power System, Load Switch.

/ Equivalent Circuit



/ Pinning



Pin	极性
1	S
2	S
3	S
4	G
5	D
6	D
7	D
8	D

/ h_{FE} Classifications & Marking

! " 。 See Marking Instructions.

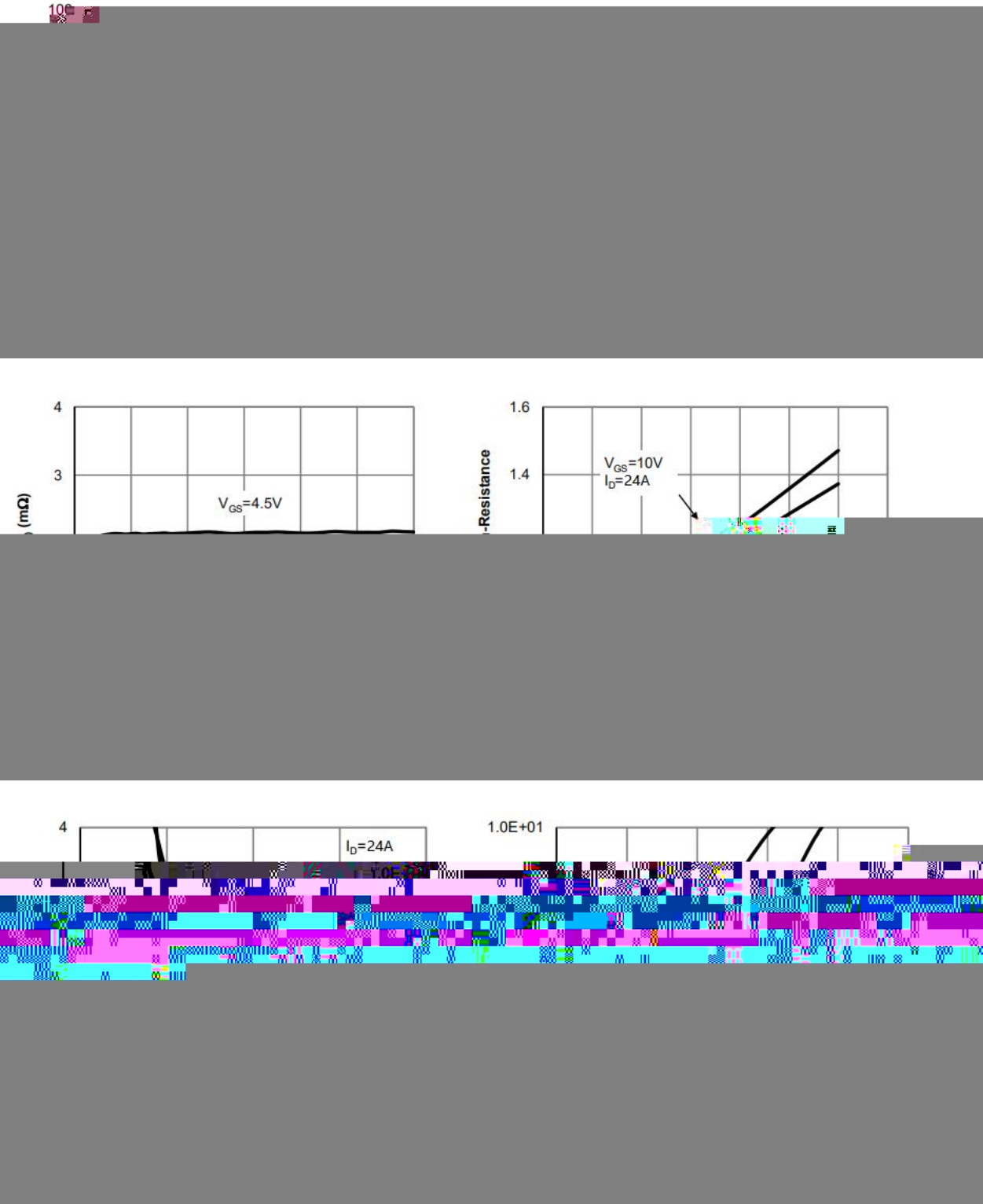
# \$ Parameter	% & Symbol	\$ ' Rating	() Unit
Drain-Source Voltage	V_{DS}	30	V
Drain Current - Continuous	I_D	146	A
Drain Current – Pulsed	I_{DM}	300	A
Gate-Source Voltage	V_{GS}	± 20	V
Power Dissipation	$P_D(T_c=25^\circ\text{C})$	57	W
Single Pulse Avalanche Energy(L=0.5mH)	E_{AS}	315	mJ
Avalanche Current(L=0.5mH)	I_{AS}	30	A
Junction and Storage Temperature Range	T_j, T_{stg}	-55 to 150	$^\circ\text{C}$
Thermal resistance, junction - ambient	$t \leq 10\text{s}$	$R_{\theta JA}$	$^\circ\text{C/W}$
	Steady-State		
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	

# \$ Parameter	% & Symbol	* + , - Test Conditions	. / ' Min	0 1 ' Typ	. 2 ' Max	() Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	30	35		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30\text{V}, V_{GS}=0\text{V}$			1.0	μA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1	1.6	3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=24\text{A}$		1.5	1.8	m Ω
		$V_{GS}=4.5\text{V}, I_D=12\text{A}$		2.0	2.8	
Diode Forward Voltage	V_{SD}	$I_S=1\text{A}, V_{GS}=0\text{V}$		0.68	1	V
Input Capacitance	C_{iss}	$V_{DS}=25\text{V}, V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		8500		pF
Output Capacitance	C_{oss}			890		
Reverse Transfer Capacitance	C_{rss}			670		
Gate resistance	R_g	$V_{GS}=0\text{V}, V_{DS}=0\text{V}$ $f=1\text{MHz}$				Ω
Total Gate Charge	$Q_g(40^\circ\text{C})$			10		
Total Gate Charge	$Q_g(10^\circ\text{C})$	$V_{GS}=10\text{V}, V_{DS}=15\text{V}, I_D=20\text{A}$				nC
Gate Source Charge	Q_{gs}			12		nC

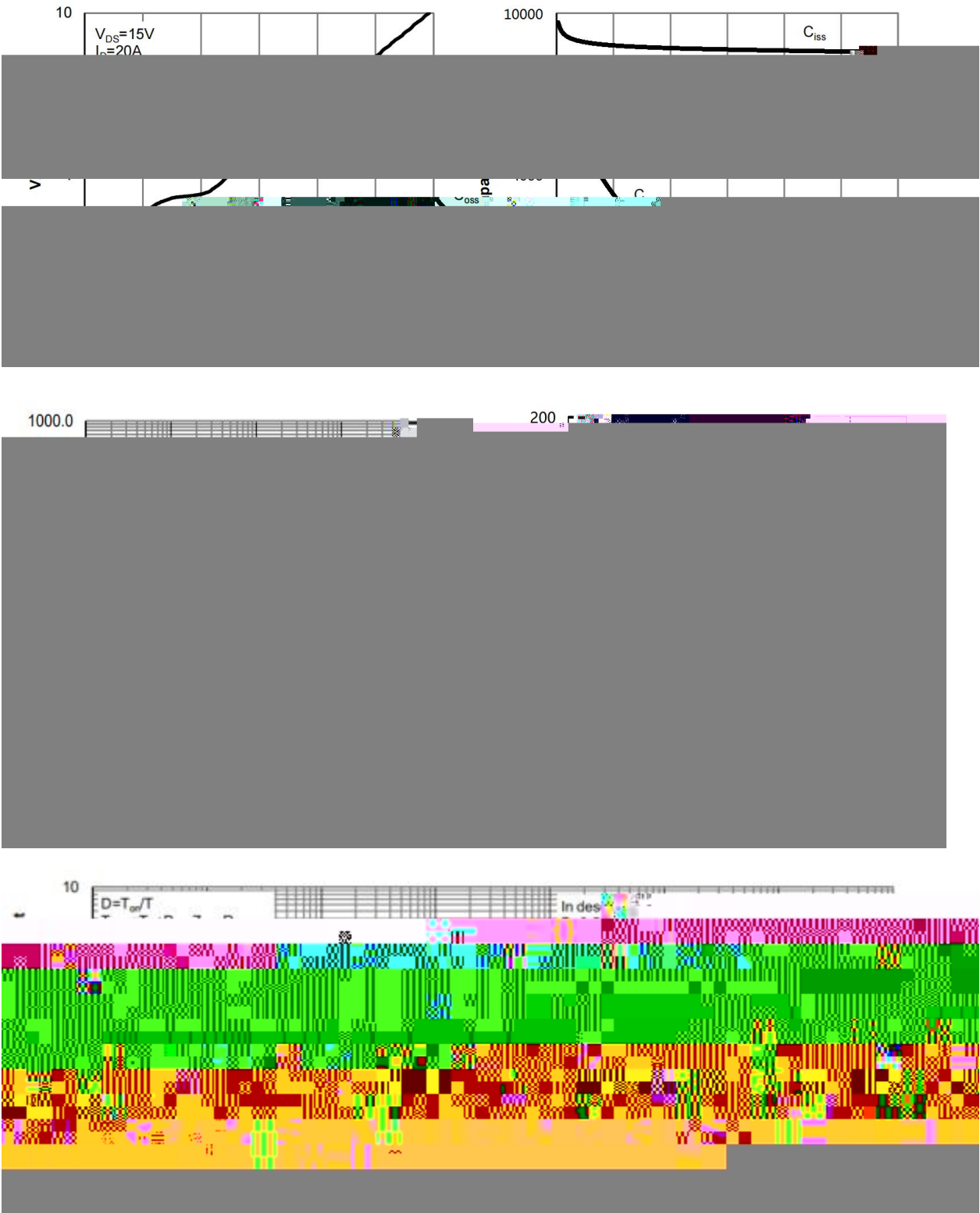
/ Electrical Characteristics(Ta=25)

# \$ Parameter	% & Symbol	* + , - Test Conditions	. / ' Min	0 1 ' Typ	. 2 ' Max	() Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=15V$ $R_L=0.75\Omega$ $R_{GEN}=3\Omega$		12.5		ns
Turn-On Rise Time	t_r			6.0		
Turn-Off Delay Time	$t_{d(off)}$			47		
Turn-Off Fall Time	t_f			10.5		

/ Electrical Characteristic Curve



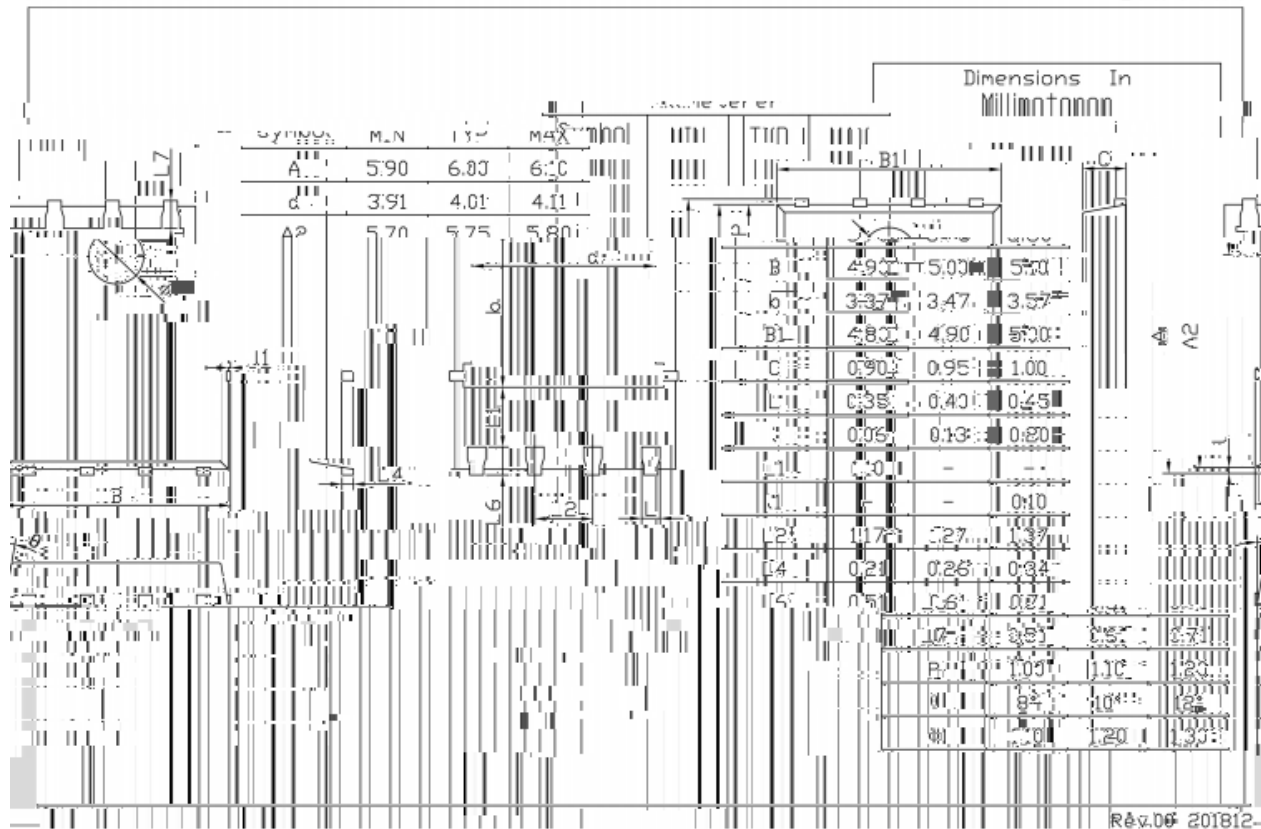
/ Electrical Characteristic Curve



/ Package Dimensions

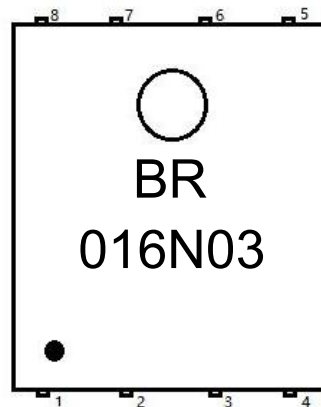
PDFN5 X6

Unit:mm



REV.00 201812

/ Marking Instructions



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BR 3 4 5 6 7 8

016N03 3 4 1 & 7 8

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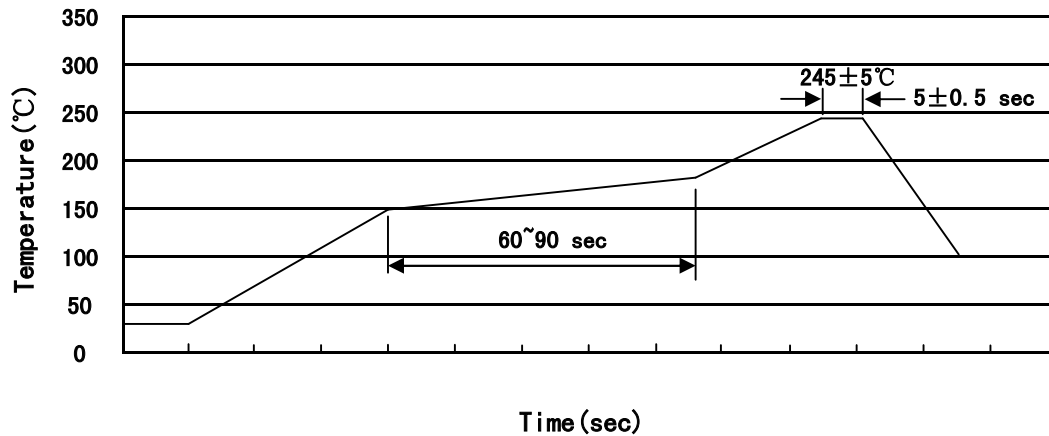
Note:

BR: Company Code.

016N03: 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°C, Time:60~90sec. |
| 2 | 245±5 | 5±0.5sec; | 2.Peak Temp.:245±5°C, Duration:5±0.5sec. |
| 3 | 2 10°C/sec. | | 3. Cooling Speed: 2~10°C/sec. |

/ Resistance to Soldering Heat Test Conditions

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

/ Packaging SPEC.

/ REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	只/卷盘	卷盘/盒	只/盒	盒/箱	只/箱		盒	箱
PDFN5 × 6	5000	2	10000	6	60000	13" × 12	360 × 360 × 50	380 × 335 × 366

/ Notices