

BRCS030N06SZC

Rev.B Feb.-2023



PDFN5~6 / x N ?ú 3 « | • ’ ož

N-Channel MOSFET in a PDFN5 h6 Plastic Package .

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Low R

Absolute Maximum Ratings($T_a=25^\circ\text{C}$;)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Continuous Drain Current	I_D	123	A
Pulsed Drain Current	I_{DM}	253	A
Gate-Source Voltage	V_{GS}	≤ 20	V
Power Dissipation	$P_D(T_c=25^\circ\text{C})$	83	W
Avalanche energy($L=0.5\text{mH}$)	E_{AS}	2000	mJ
Avalanche Current($L=0.5\text{mH}$)	I_{AS}	47	A
Junction and Storage Temperature Range	T_j, T_{stg}	-55 to 150	-
Maximum Junction-to-Ambient	$t \leq 10\text{s}$	$R_{\theta JA}$	20
	Steady-State		50
Maximum Junction-to-Case	Steady-State	$R_{\theta JC}$	1.5

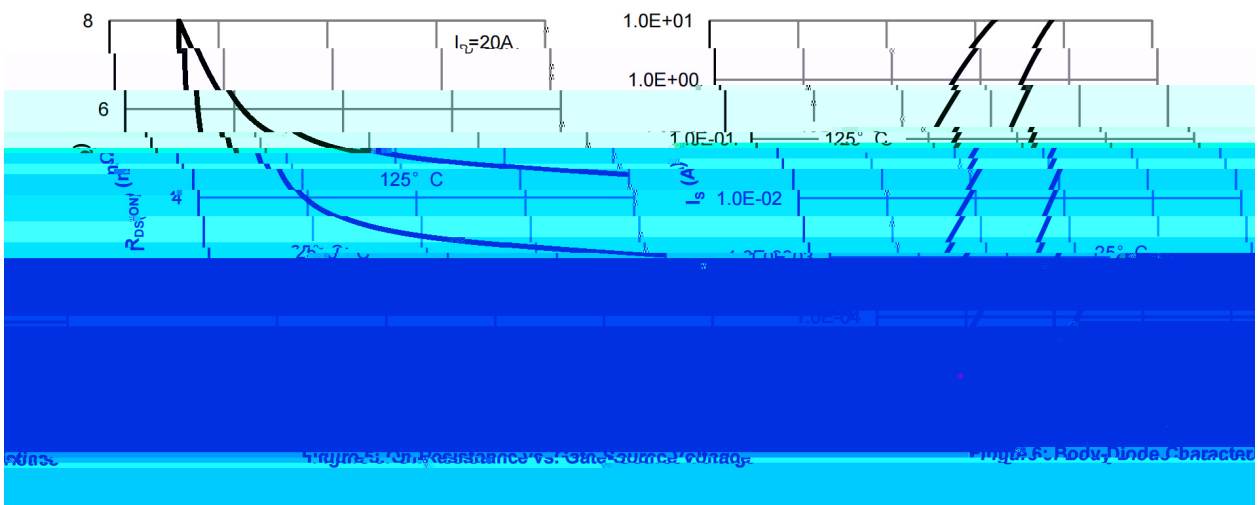
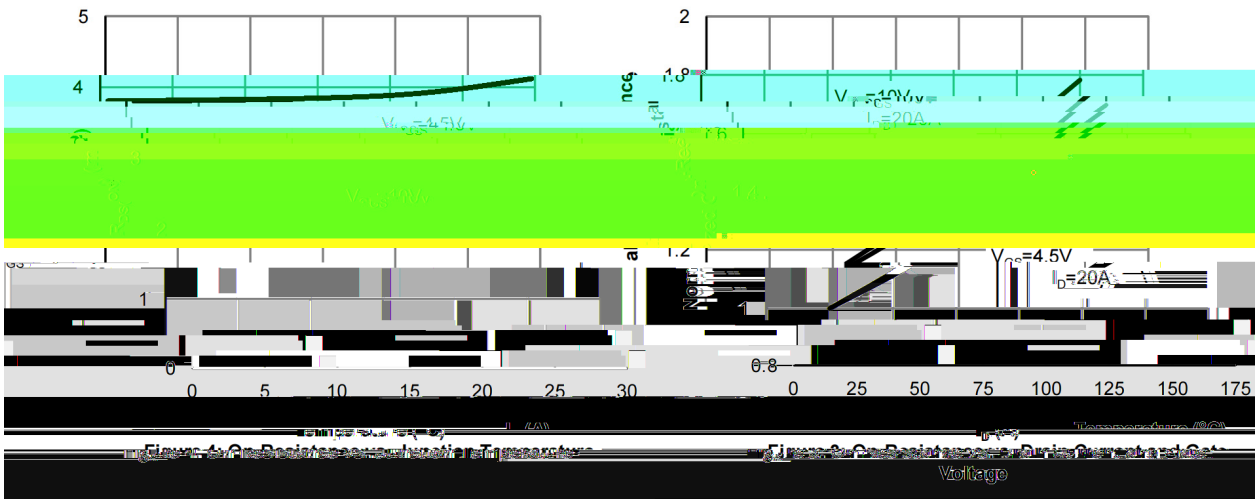
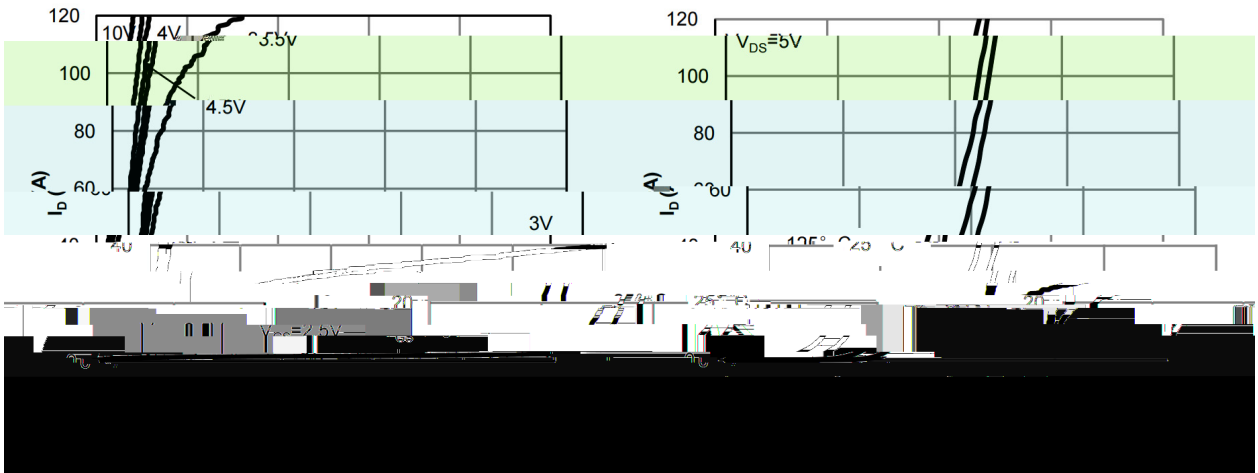
 Electrical Characteristics($T_a=25^\circ\text{C}$;)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$	60	77		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60\text{V}, V_{GS}=0\text{V}$			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	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}, I_D=20\text{A}$		2.8	3	m Ω
		$V_{GS}=4.5\text{V}, I_D=20\text{A}$		3.8	5	
Diode Forward Voltage	V_{SD}	$I_S=1\text{A}, V_{GS}=0\text{V}$		0.64	1	V
Input Capacitance	C_{iss}	$V_{DS}=25\text{V}, V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		3710		pF
Output Capacitance	C_{oss}			2100		
Reverse Transfer Capacitance	C_{rss}			230		
Gate resistance	R_g	$V_{GS}=0\text{V}, V_{DS}=0\text{V}$ $f=1\text{MHz}$		2.3		
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10\text{V}, V_{DS}=30\text{V},$ $I_D=20\text{A}$		51		nC
Total Gate Charge	$Q_{g(4.5V)}$			25		
Gate Source Charge	Q_{gs}			10		
Gate Drain Charge	Q_{gd}			8.5		

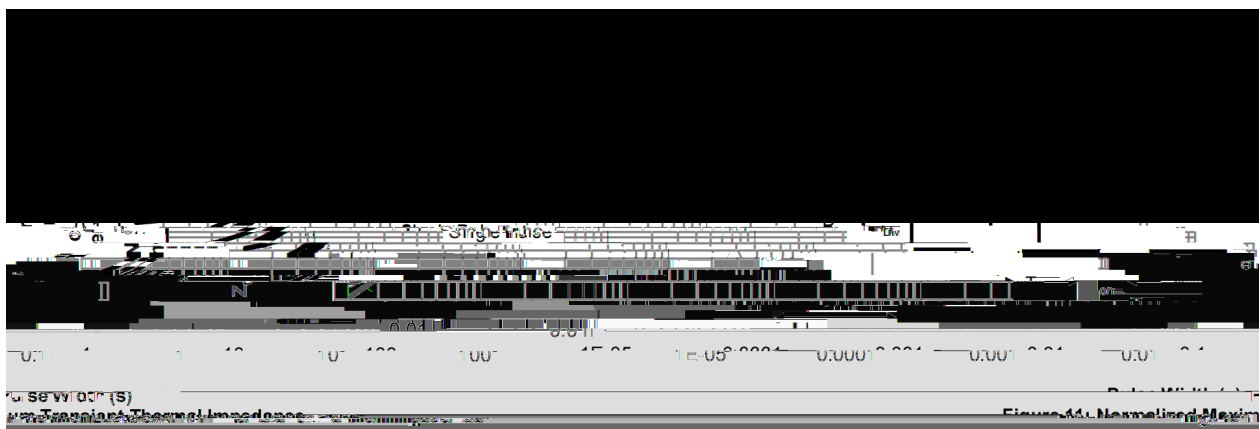
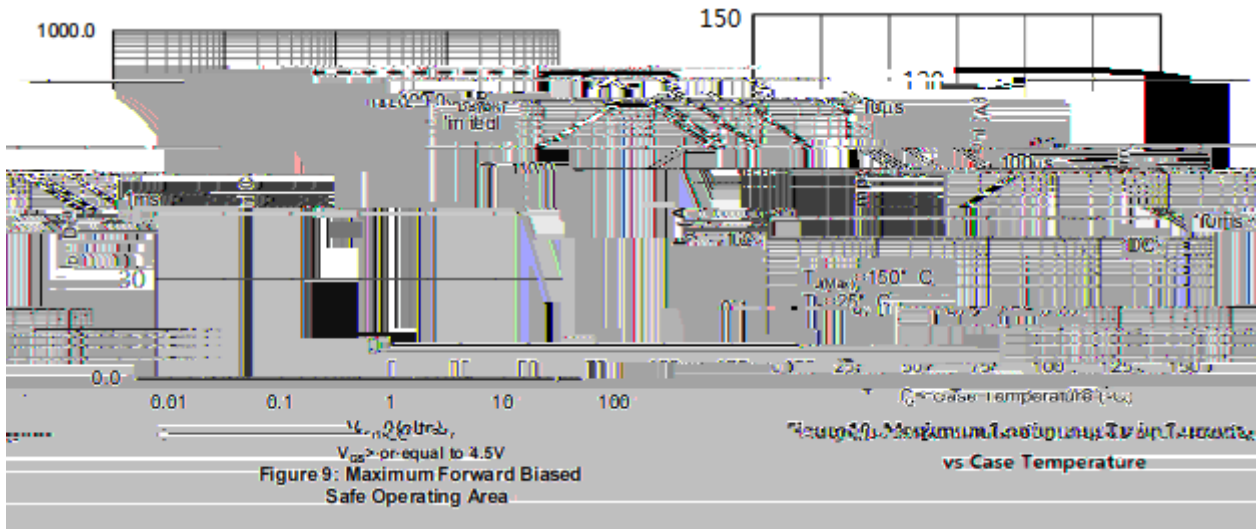
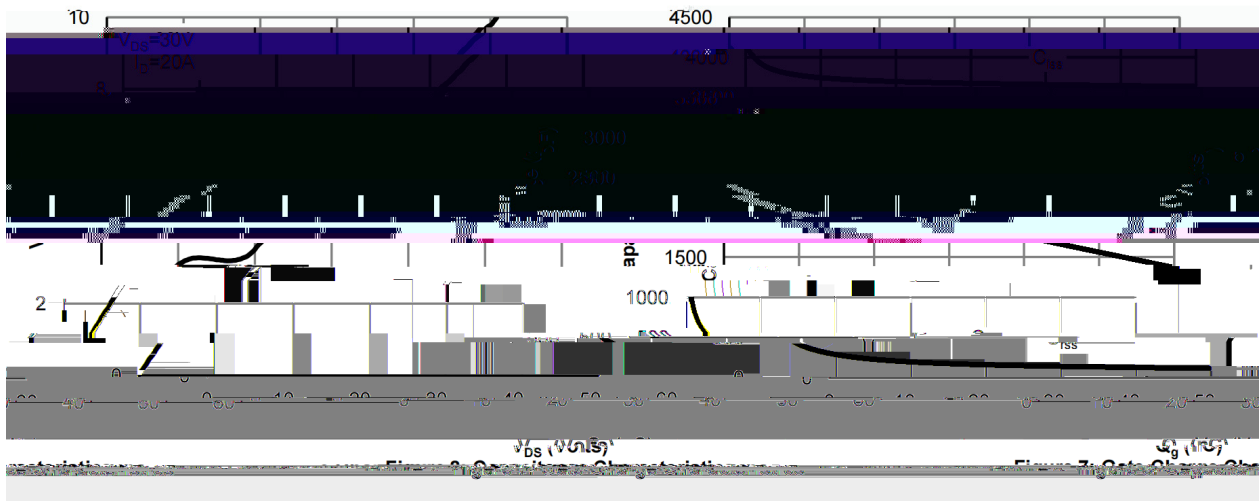
Electrical Characteristics(Ta=25 ;)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V V _{DS} =30V R _L =1.5 Ω R _{GEN} =3 Ω		11		ns
Turn-On Rise Time	t _r			6		
Turn-Off Delay Time	t _{d(off)}			43		
Turn-Off Fall Time	t _f			2		

Electrical Characteristic Curve



Electrical Characteristic Curve



Ø □ =) φ / Package Dimensions

PDFN5 X6

Unit:mm

Dimensions In Millimeter			Symbol
MIN	TYP	MAX	

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Temperature Profile for IR Reflow Soldering(Pb-Free)

1. Preheating

150~180 - , Time:60~90sec;

2. Peak Temp.:245 r5 - , Duration:5 r0.5sec;

3. Cooling Speed: 2~10 - /sec.

Note:

1.Preheating:150~180 - , Time:60~90sec.

2.Peak Temp.:245 r5 - , Duration:5 r0.5sec.

3. Cooling Speed: 2~10 - /sec.

Resistance to Soldering Heat Test Conditions

Temp.:260±5

Time:10±1 sec.

Temp.:260±5

Time:10±1 sec

Packaging SPEC.

REEL

Package Type	Units	Dimension	(unit mm ³)
/x"			