

BRCS030N06SZC

Rev.B Feb.-2023

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

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 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°C to 150°C	-
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

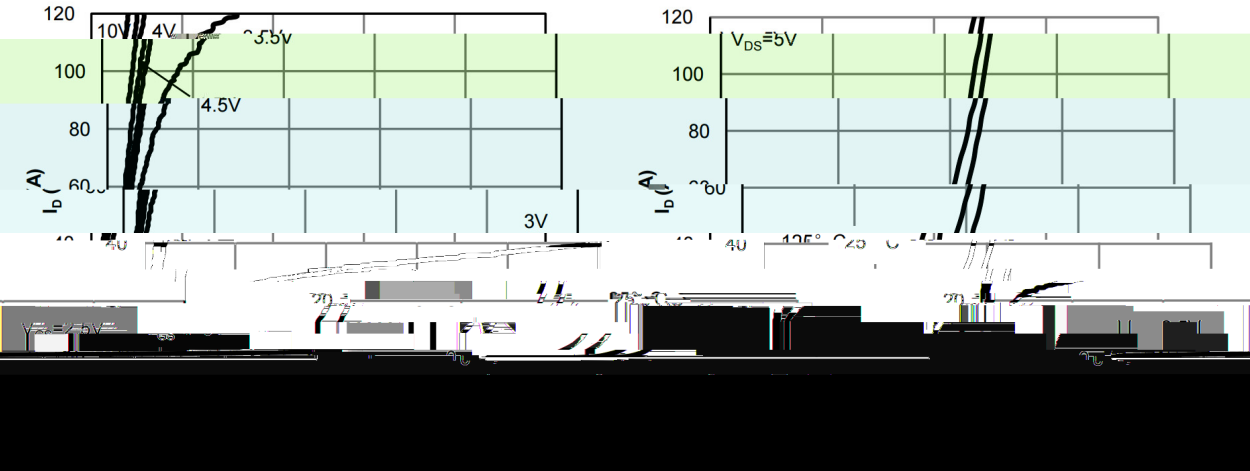
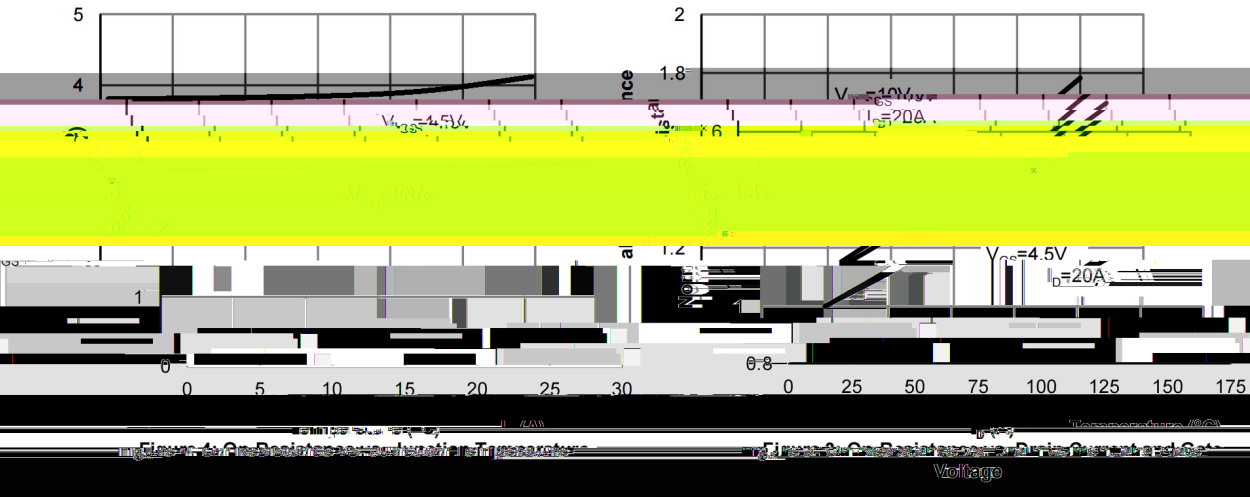
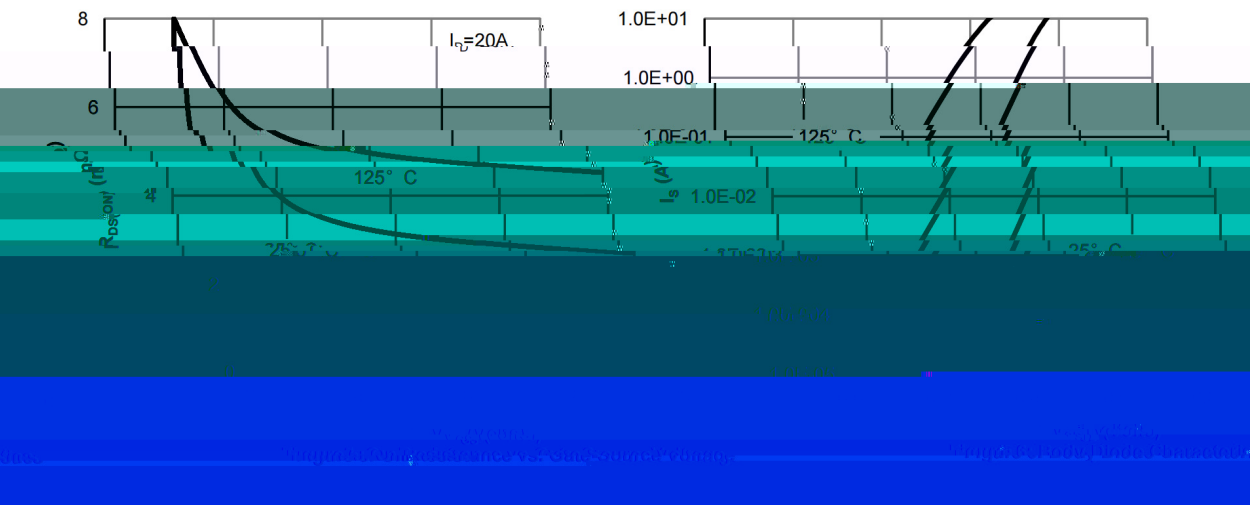
 Electrical Characteristics($T_a=25^\circ\text{C}$;)

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		

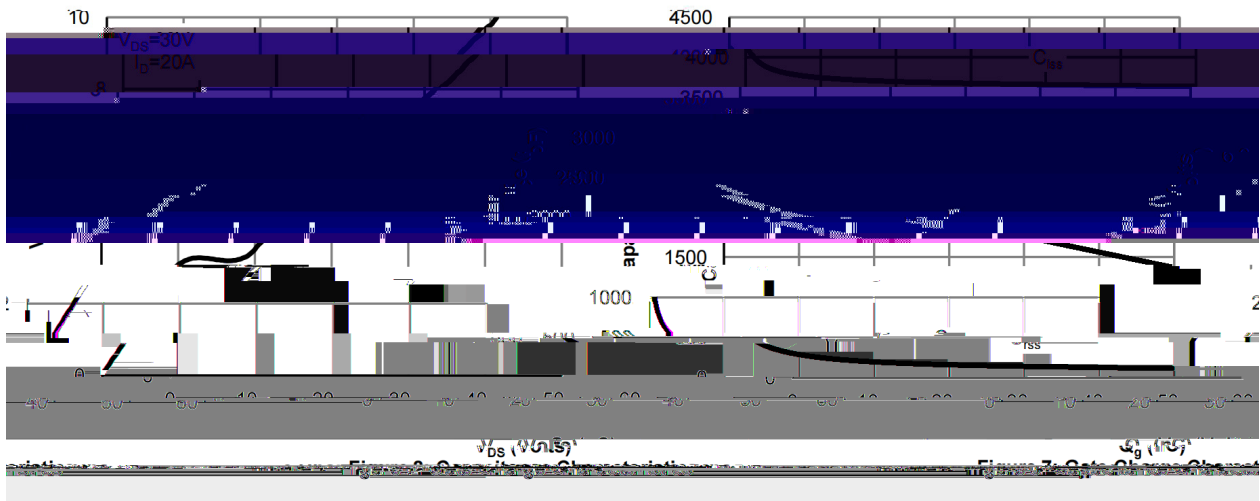
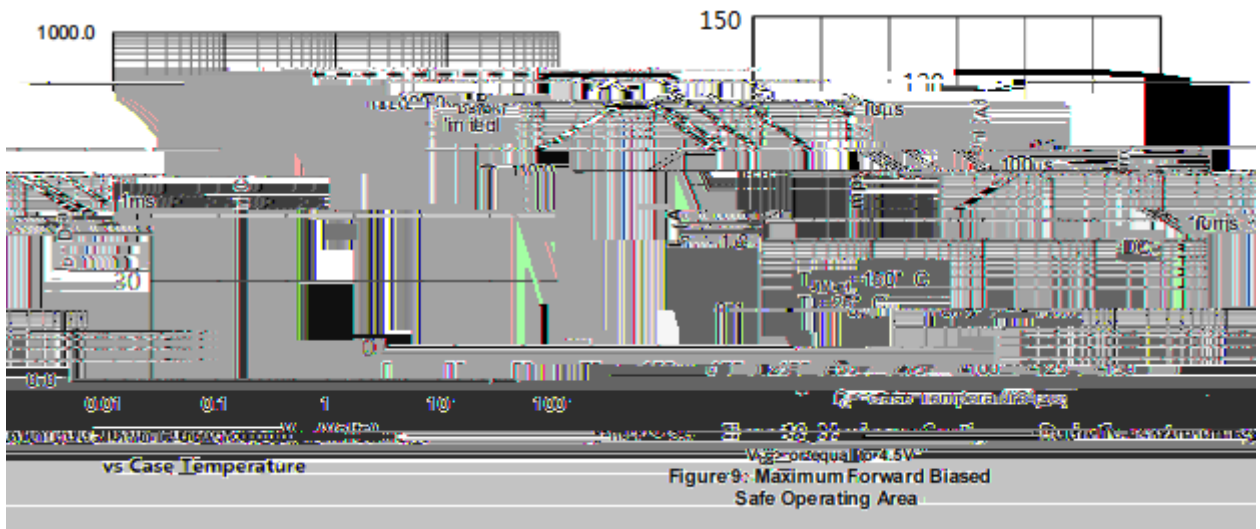
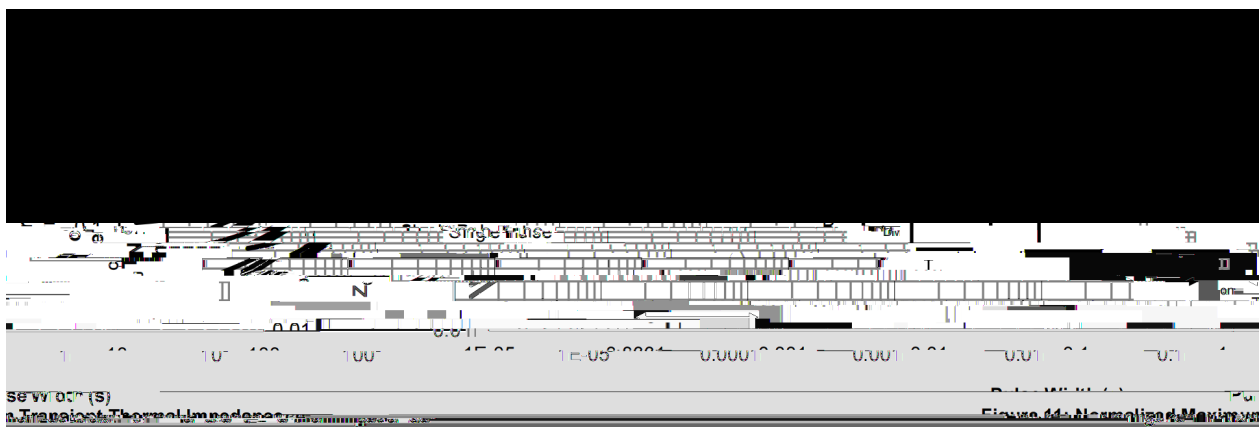
Electrical Characteristics(Ta=25℃ ;)

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

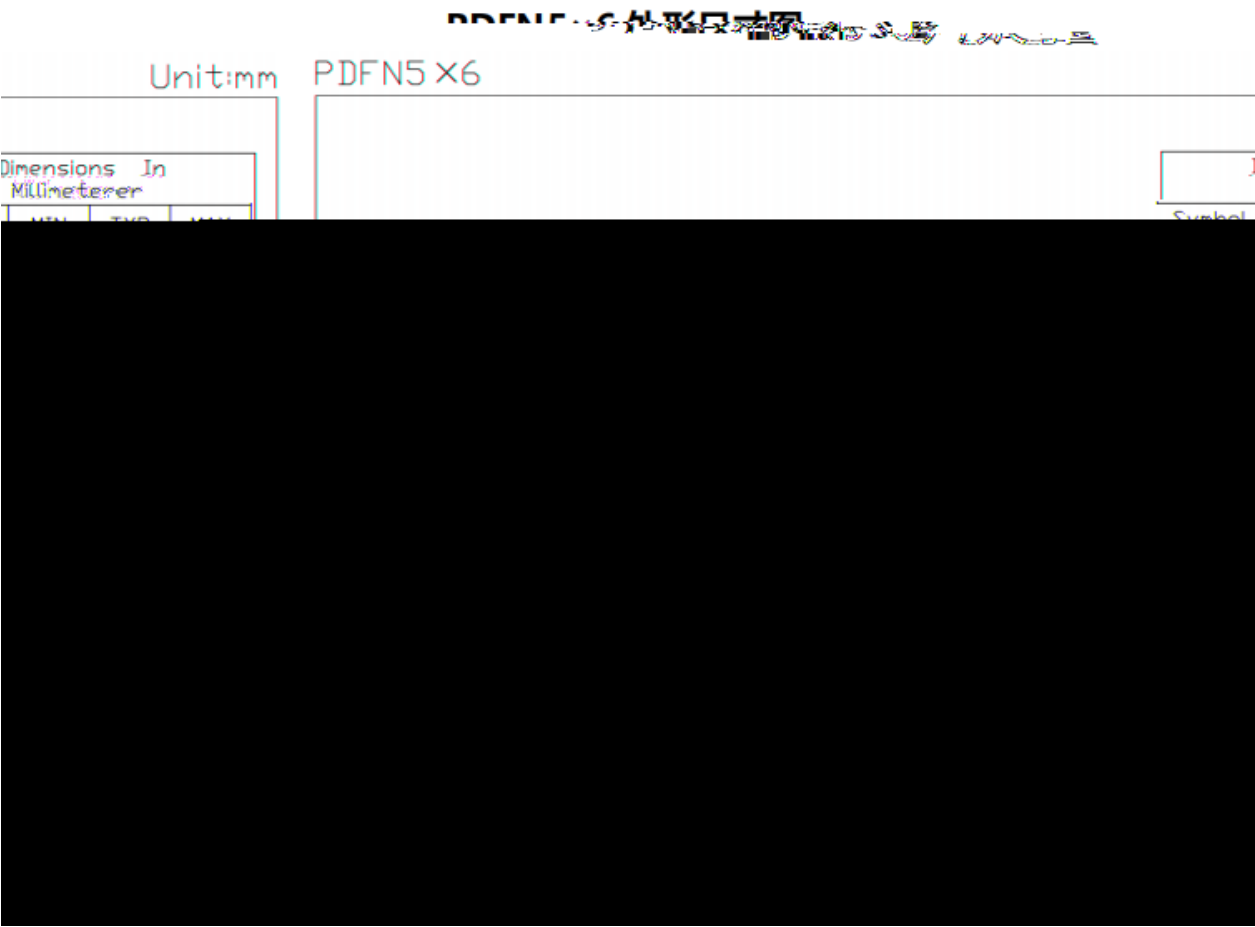
Electrical Characteristic Curve



Electrical Characteristic Curve



Ø □ =) ¢ / Package Dimensions



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030N06S y D } ° Z

§ WD t ... • Ž Ć (x /) / Temperature Profile for IR Reflow Soldering(Pb-Free)

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- 1o• Ä ½ “ † 150 ½180 - k ž • 60 ½90sec;
- 2o• Q > “ † 245 r5 - k ž • 4 Ò 5 r0.5sec;
- 3o•D N ò i Ò 0 , † 2 ½10 - /sec.

Note:

- 1.Preheating:150~180 - , Time:60~90sec.
- 2.Peak Temp.:245 r5 - , Duration:5 r0.5sec.
- 3. Cooling Speed: 2~10 - /sec.

ÂD /Cã p ¯ »] / Resistance to Soldering Heat Test Conditions

“ † y 260 r5 - ž • y 10 r1 sec. Temp.:260±5 Time:10±1 sec

G P á / Packaging SPEC.

2 & x / REEL

Package Type / x ¥ "	Units ;>û ĨH	Dimension ;>û p . (unit Ånm ³)
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