

BRCS050N06SZC

Rev.A Feb.-2025



DATA SHEET

PDFN5×6 N

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

V_{DS}

/ 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 (T _c =25°C)	81	A
Pulsed Drain Current		I _{DM}	256	A
Gate-Source Voltage		V _{GS}	± 20	V
Power Dissipation		P _D (T _c =25°C)	65	W
Avalanche energy(L=0.5mH)		E _{AS}	253	mJ
Avalanche Current(L=0.5mH)		I _{AS}	22.5	A
Junction and Storage Temperature Range		T _j , T _{stg}	-55 to 150	
Maximum Junction-to-Ambient	t ≤ 10s	R _{θJA}	23	/ W
	Steady-State		52	
Maximum Junction-to-Case	Steady-State	R _{θJC}	1.92	

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0\text{V}$ $I_D=250\text{ A}$	60	70		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60\text{V}$ $V_{GS}=0\text{V}$			1	A
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20\text{V}$ $V_{DS}=0\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\text{ A}$	1	1.5	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}$ $I_D=20\text{A}$		4.9	5.2	m
		$V_{GS}=4.5\text{V}$ $I_D=10\text{A}$		6.8	7.5	
Forward On Voltage	V_{SD}	$V_{GS}=0\text{V}$ $I_S=1\text{A}$			1.2	V
Gate resistance	R_g	$f=1\text{MHz}$		1.3		
Input Capacitance	C_{iss}	$V_{DS}=25\text{V}$ $V_{GS}=0\text{V}$ $f=1.0\text{MHz}$		1900		pF
Output Capacitance	C_{oss}			1000		
Reverse Transfer Capacitance	C_{rss}			60		
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10\text{V},$ $V_{DS}=30\text{V},$ $I_D=20\text{A}$		45		nC
Total Gate Charge	$Q_{g(4.5V)}$			25		
Gate Source Charge	Q_{gs}			6.8		
Gate Drain Charge	Q_{gd}			8.7		

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=30V$ $R_L=1.5\Omega$ $R_{GEN}=3\Omega$		7.6		ns
Turn-On Rise Time	t_r			6.7		
Turn-Off Delay Time	$t_{d(off)}$			39		
Turn-Off Fall Time	t_f			8.5		

Electrical Characteristic Curve

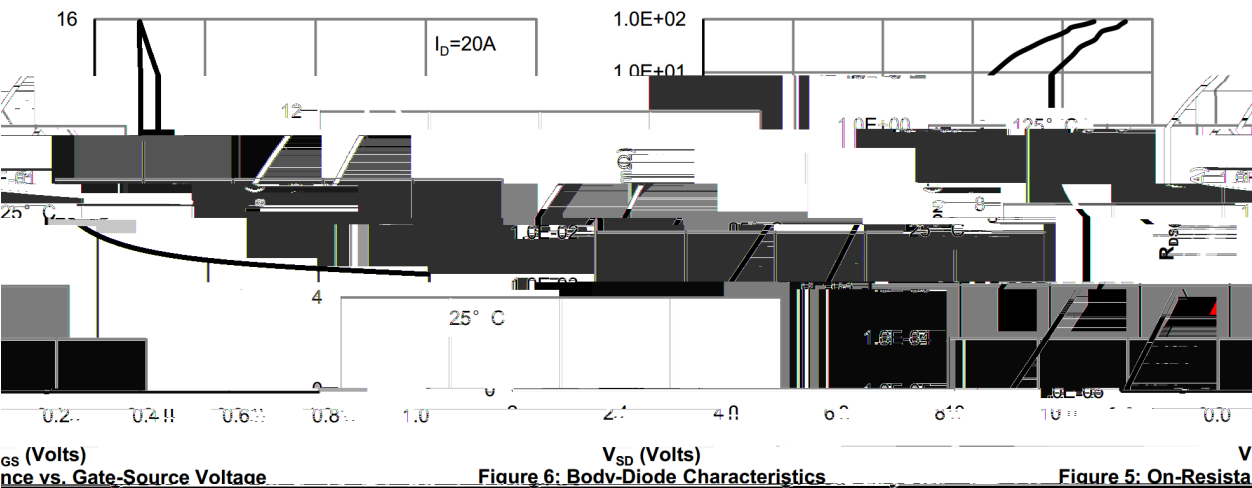
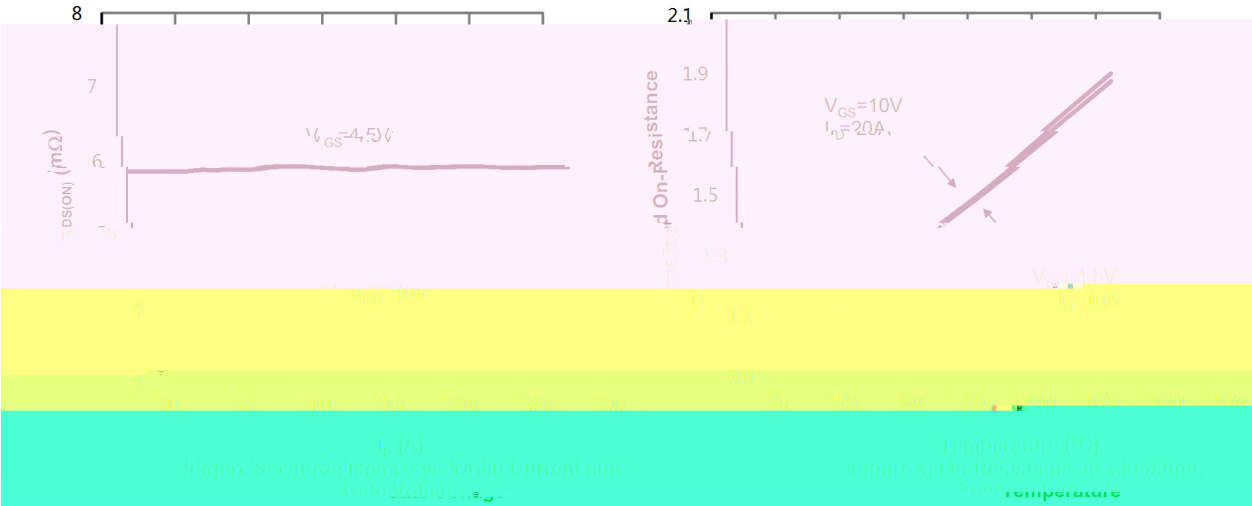
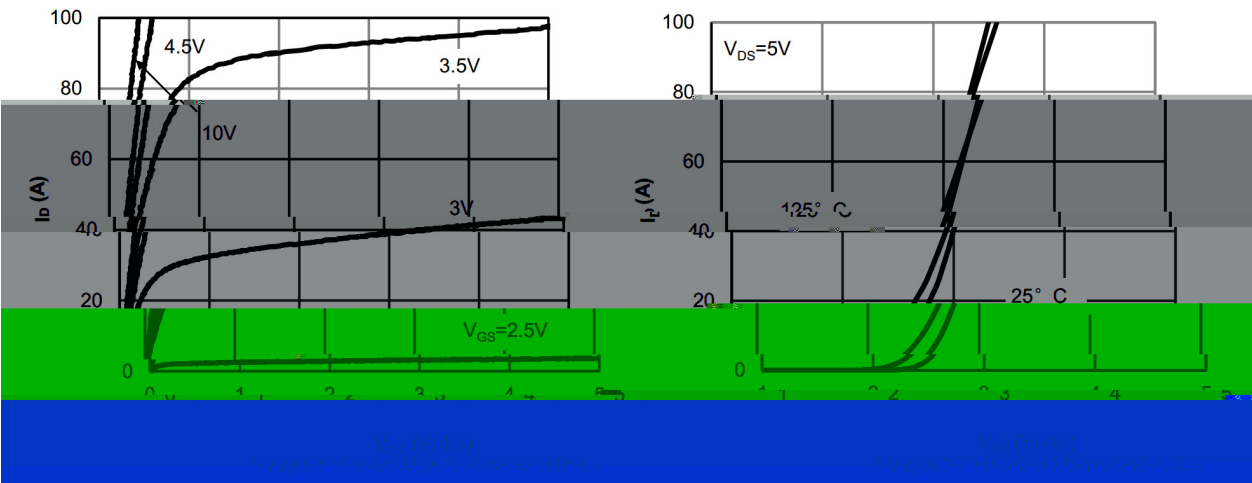
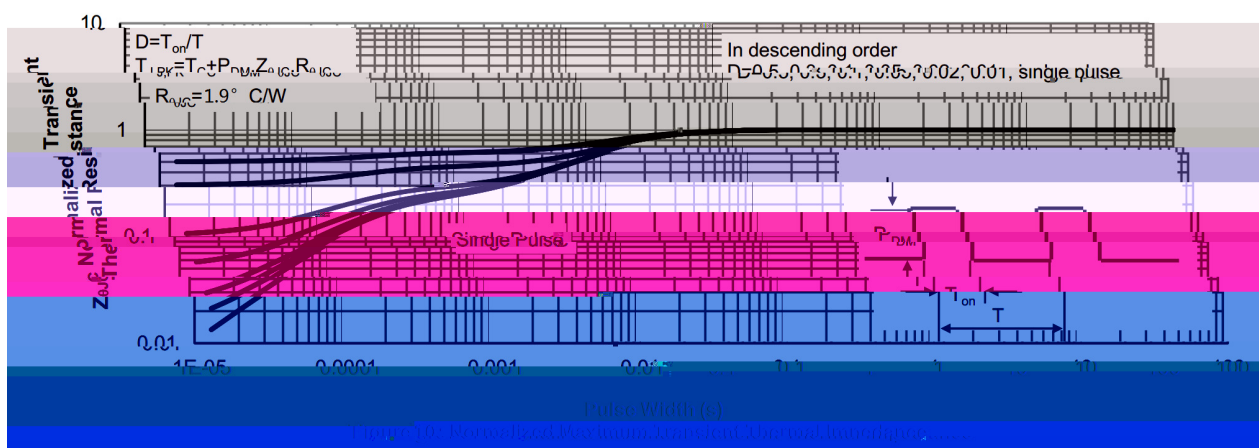
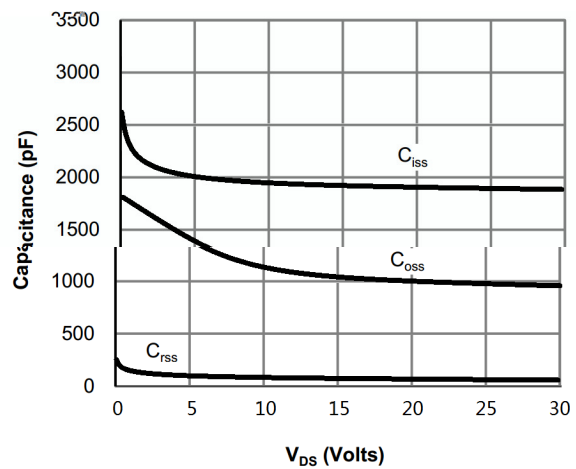
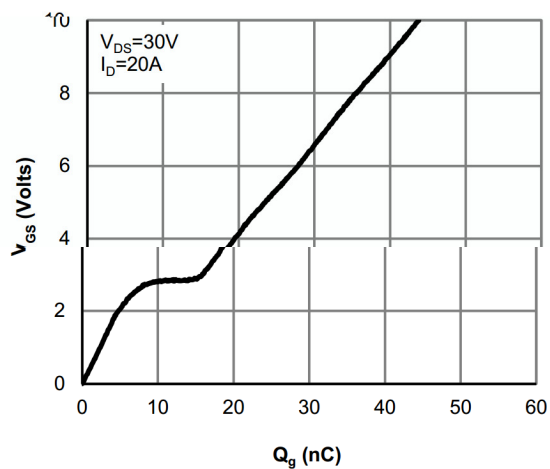


Figure 5: On-Resistance vs. Gate-Source Voltage

Figure 6: Body-Diode Characteristics

Figure 5: On-Resistance vs. Drain-Source Voltage

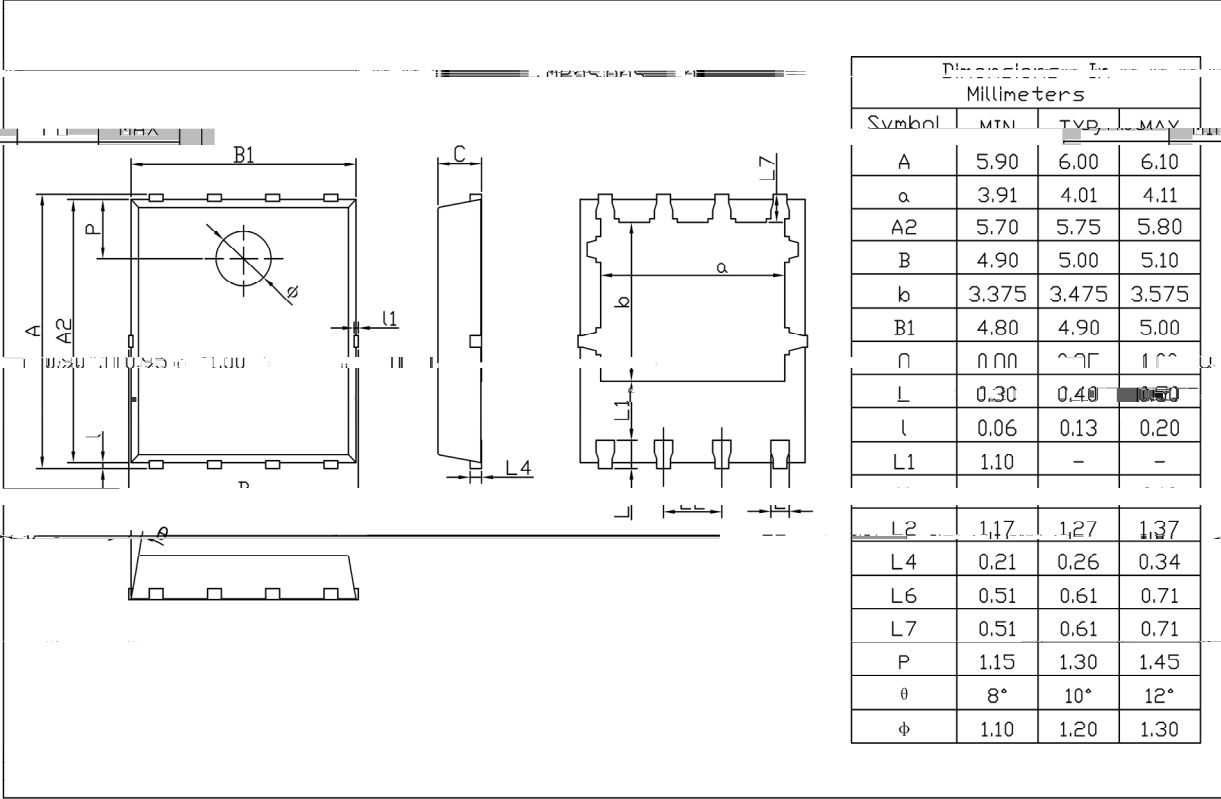
/ Electrical Characteristic Curve



I Package Dimensions

PDFN5 X6

Unit:mm



Rev.01 202209

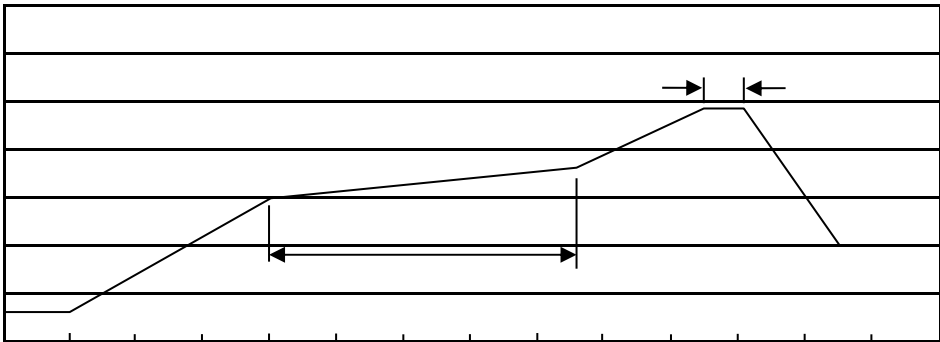
/ Marking Instructions



BR	
050N06S	

Note	
BR	Company Code
050N06S	Product Type Code
****:	Lot No. Code, code change with Lot No

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



- 1

150 180

60 90sec;
- 2

245±5

5±0.5sec;
- 3

2 10 /sec.
- Note:

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

2.Peak Temp.:245±5 , Duration:5±0.5sec.

3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

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

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension (unit mm ³)		
	/	/	/	/	/			
PDFN5×6	5,000	2	10,000	6	60,000	13"×12	360×360×50	380×335×366

/ Notices