

BRCS120P03ZC

Rev.B Sep.-2024



DATA SHEET

PDFN5×6 P

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

$V_{DS} (V) = -30V$ $I_D = -46A$ ($V_{GS} = \pm 20V$)

$R_{DS(ON)}@-10V \leq 12m\Omega$ (Typ. 10.5m Ω)

$R_{DS(ON)}@-4.5V \leq 18m\Omega$ (Typ. 16.5m Ω)

HF Product.

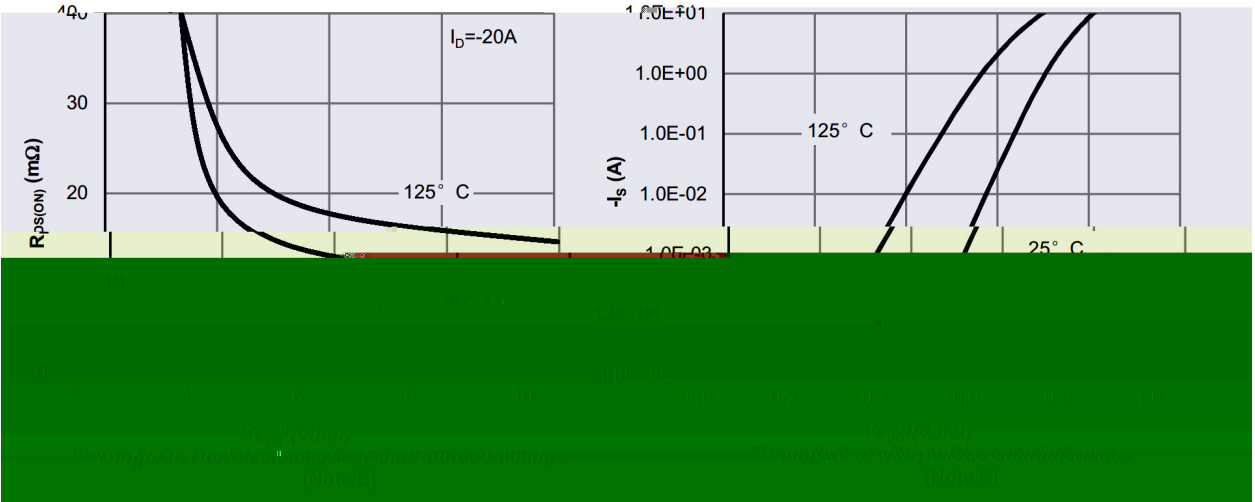
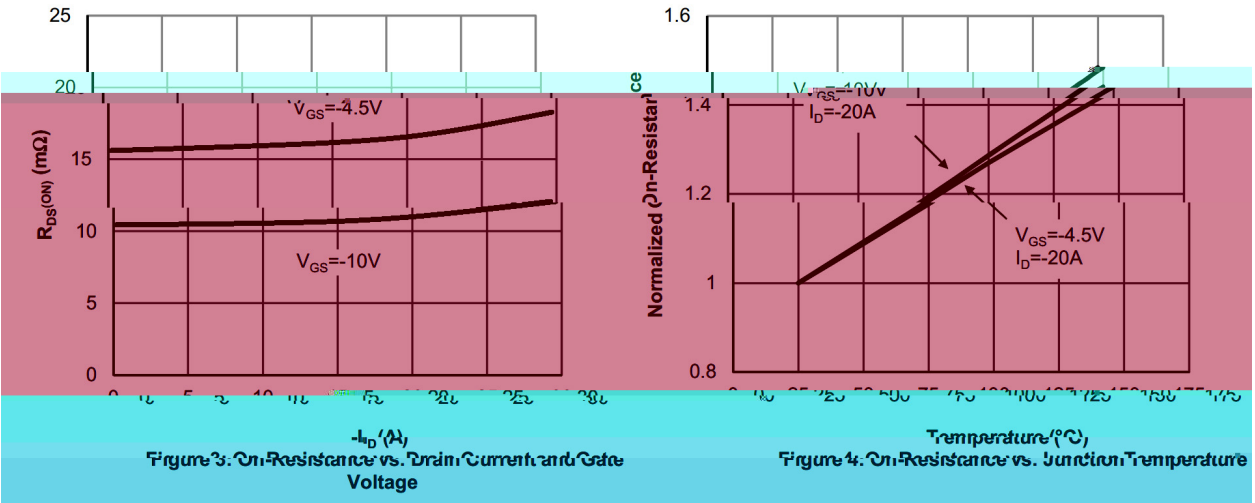
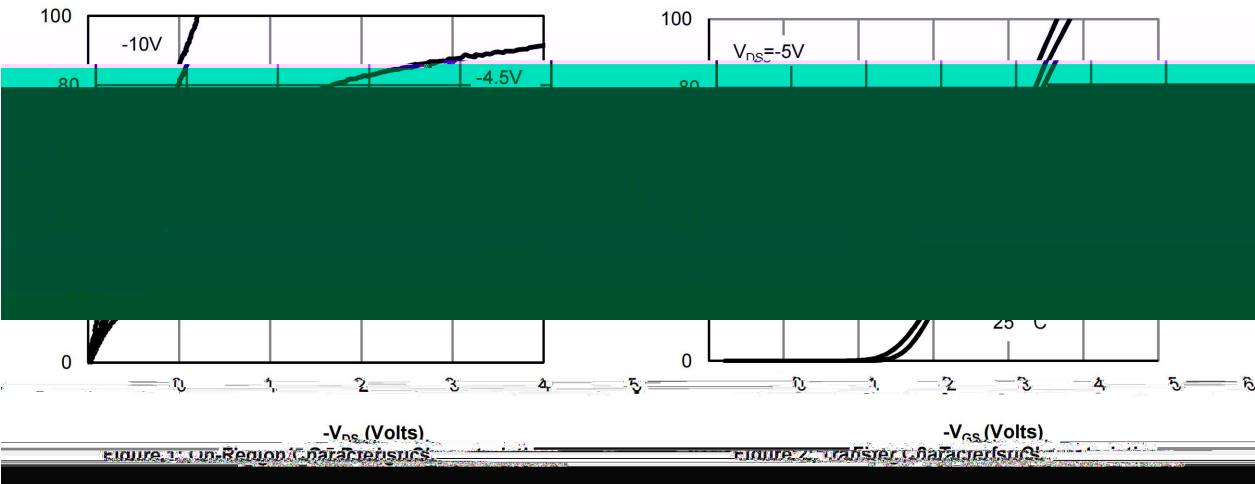

/ Absolute Maximum Ratings($T_a=25^\circ\text{C}$)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-30	V
Drain Current		$I_D(T_c=25^\circ\text{C})$	-24	A
Drain Current - Pulsed		I_{DM}	-127	A
Gate-Source Voltage		V_{GS}	± 20	V
Avalanche Current		I_{AS}	17	A
Single Pulsed Avalanche Energy		E_{AS}	151	mJ
Power Dissipation		$P_D(T_c=25^\circ\text{C})$	38	W
Operating and Storage Temperature Range		T_J, T_{stg}	-55 to 150	
Junction-to-Ambient	$t \leq 10$	$R_{\theta JA}$	25	/W
Junction-to-Ambient	Steady-State		55	
Junction-to-Case	Steady-State	$R_{\theta JC}$	3.3	

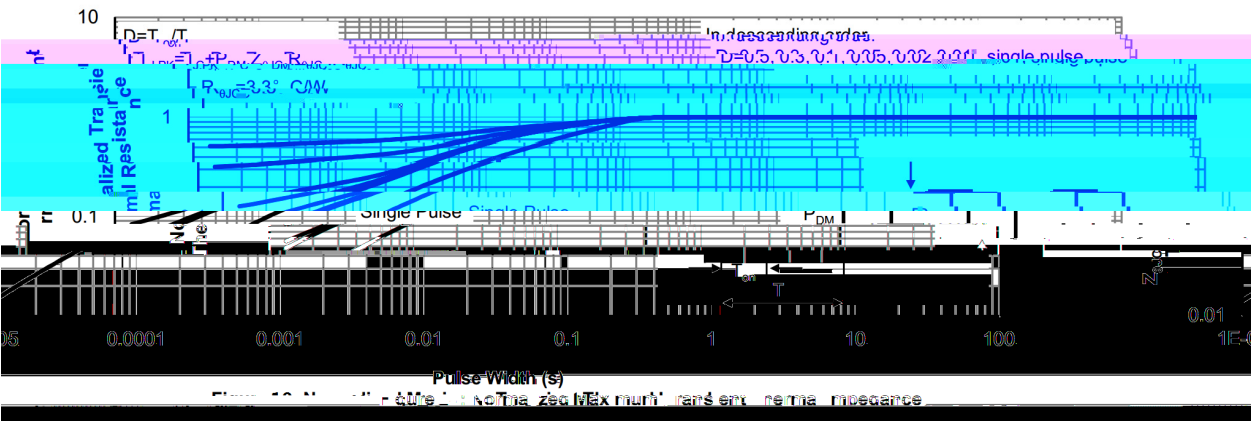
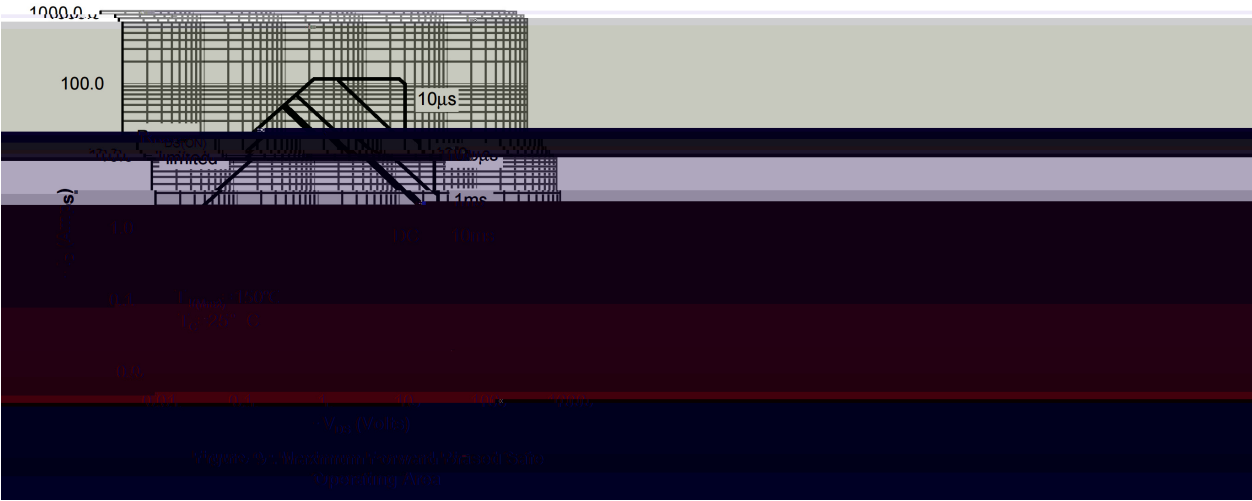
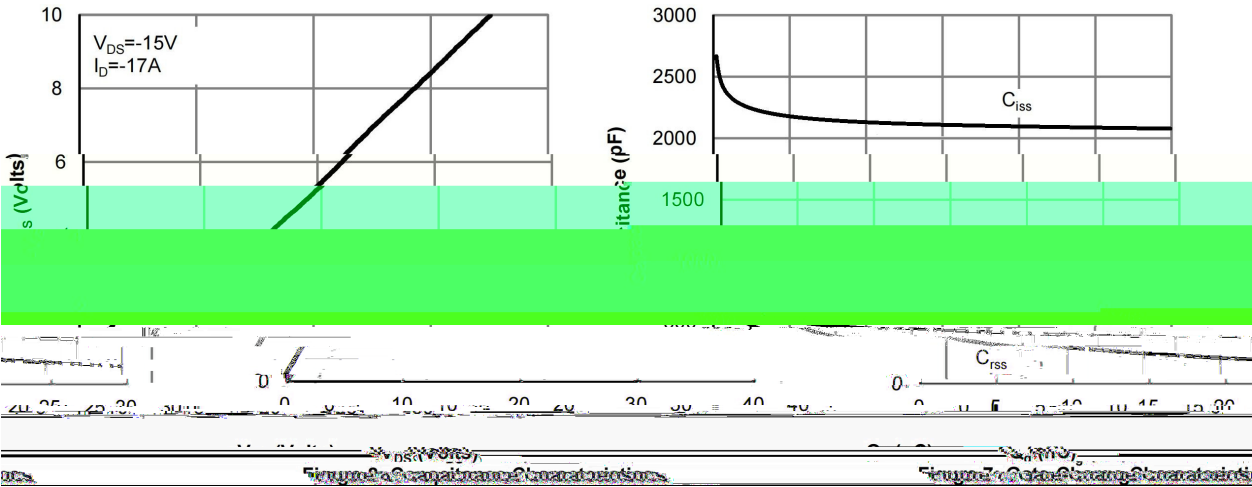
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D=-250\mu A$ $V_{GS}=0V$	-30	-36		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V$ $V_{GS}=0V$			-1	μA
Gate-Body leakage current	I_{GSS}	$V_{DS}=0V$ $V_{GS}=\pm 20V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=-250\mu A$	-1.0	-1.7	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-10V$ $I_D=-20A$		10.5	12	m Ω
		$V_{GS}=-4.5V$ $I_D=-10A$		16.5	18	
Diode Forward Voltage	V_{SD}	$I_S=-1A$ $V_{GS}=0V$			-1.2	V
Gate resistance	R_g	$V_{GS}=0V$ $V_{DS}=0V$ $f=1MHz$		7.5	10	Ω
Input Capacitance	C_{iss}	$V_{GS}=0V$ $V_{DS}=-25V$ $f=1MHz$		2100		pF
Output Capacitance	C_{oss}			340		
Reverse Transfer Capacitance	C_{rss}			210		
Total Gate Charge	$Q_g(10V)$	$V_{GS}=-10V$ $V_{DS}=-15V$ $I_D=-17A$		35		nC
Total Gate Charge	$Q_g(4.5V)$			17		
Gate-Source Charge	Q_{gs}			5.7		
Gate-Drain Charge	Q_{gd}			8.8		
Turn-on Delay Time	$t_{d(on)}$	$V_{GS}=-10V$ $V_{DS}=-15V$ $R_L=0.9\Omega$ $R_{GEN}=3\Omega$		11		ns
Turn-on Rise Time	t_r			7.5		
Turn-off Delay Time	$t_{d(off)}$			43.5		
Turn-off Fall Time	t_f			17.5		

/ Electrical Characteristic Curve



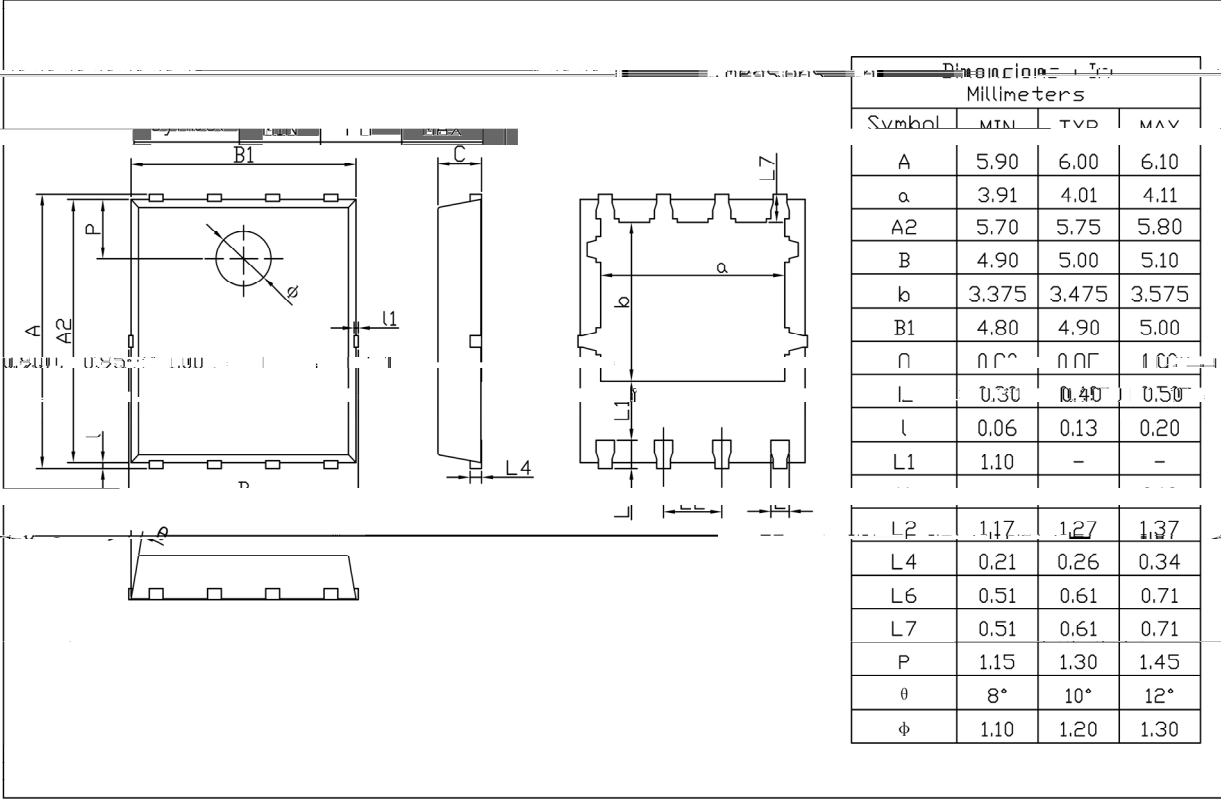
Electrical Characteristic Curve



/ Package Dimensions

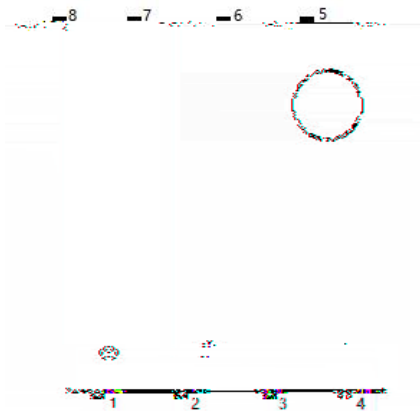
PDFN5 X6

Unit:mm



Rev.01 202209

/ Marking Instructions



() / 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

/ Packaging SPEC.

/ REEL

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