

BRCs080N04SDP

Rev.A Sep.-2022

/ Descriptions

TO-252 N MOS
N-CHANNEL MOSFET in a TO-252 Plastic Package.

/ Features

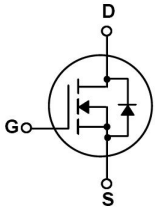
$V_{DS} (V) = 40V$
 $I_D = 54A (V_{GS} = \approx 20V)$
 $R_{DS(ON)} @ 10V \ 8mR (Typ. 7.5mR)$
HF Product.

/ Applications

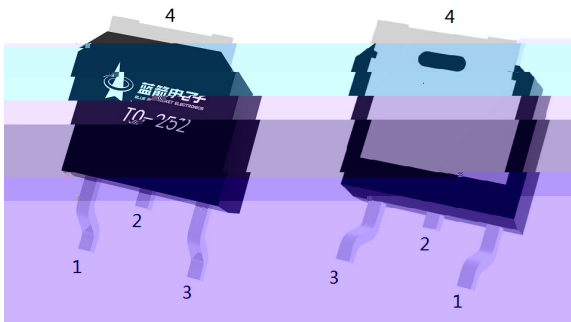
DC/DC

These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 D PIN 3 S PIN 4 D

/ Marking

See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	40	V
Drain Current		$I_D(T_C=25)$	54	A
Drain Current - Pulsed		I_{DM}	113	A
Gate-Source Voltage		V_{GS}	± 20	V
Single Pulsed Avalanche Energy		E_{AS}	67.6	mJ
Avalanche Current		I_{AS}	13	A
Power Dissipation		$P_D(T_C=25)$	39	W
Operating and Storage Temperature Range		T_J, T_{stg}	-55 to 150	
Junction-to-Ambient	$t \leq 10$	R_{JA}	25	/W
Junction-to-Ambient	Steady-State		55	
Junction-to-Case	Steady-State	R_{JC}	3.2	

/ Electrical Characteristics(Ta=25)

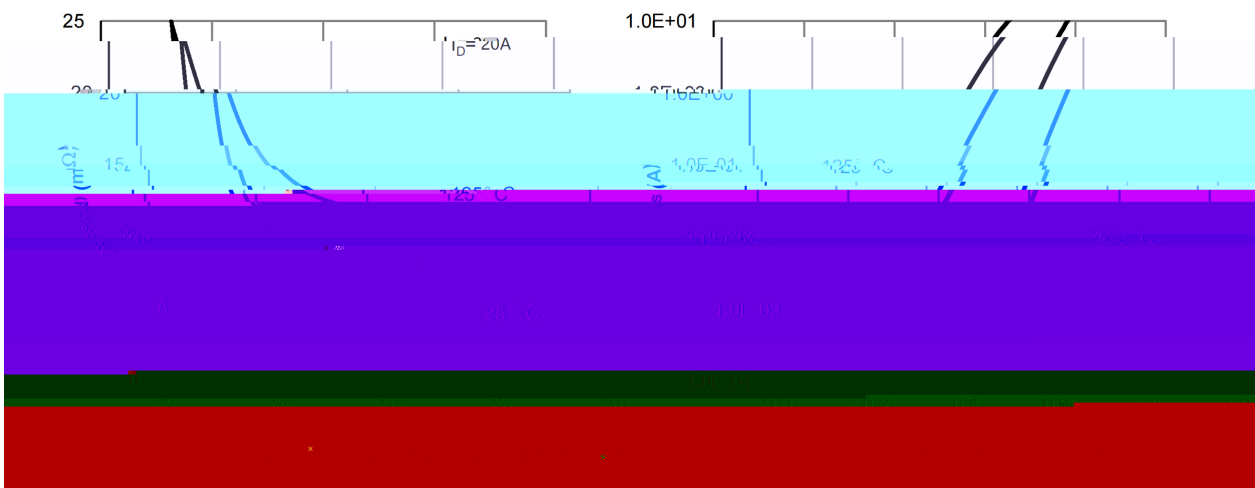
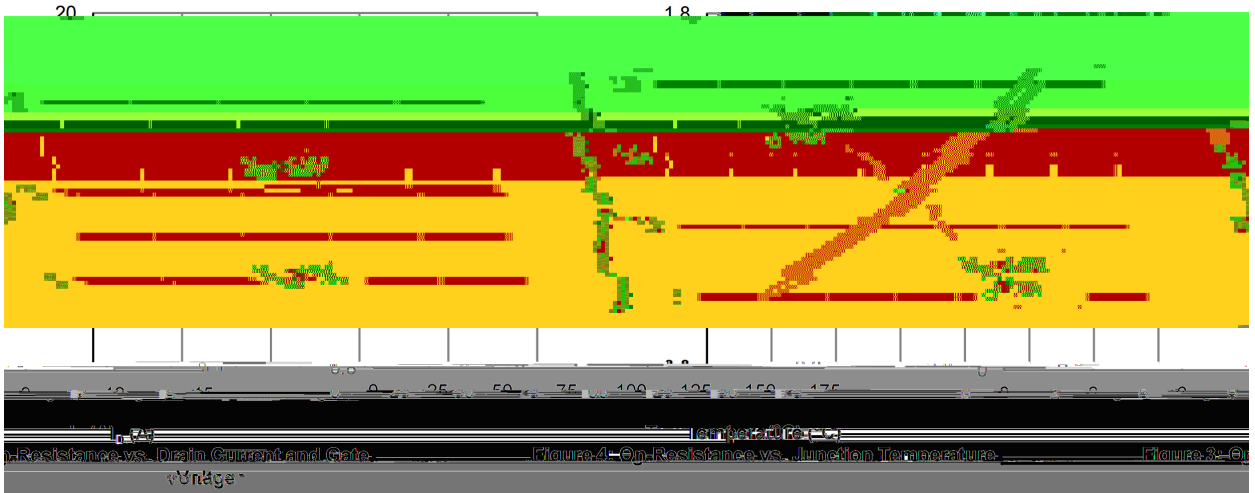
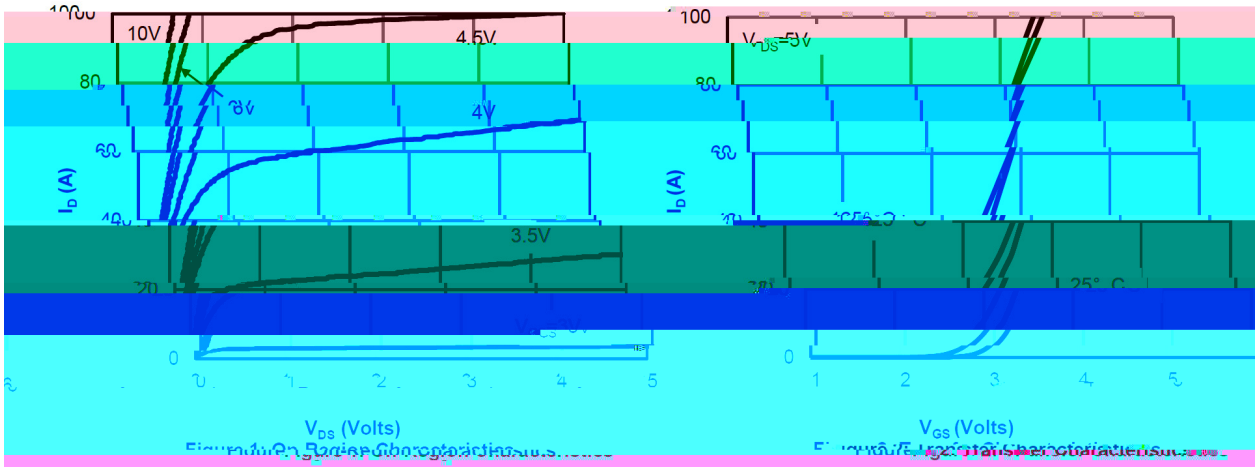
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250$ A	40	47		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=40V$ $V_{GS}=0V$			1	A
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 0.1	A
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250$ A	1.0	1.6	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=20A$		7.5	8	m
		$V_{GS}=4.5V$ $I_D=10A$		10	13	m
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=1A$			1.2	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		850		pF
Output Capacitance	C_{oss}			115		
Reverse Transfer Capacitance	C_{rss}			30		
Gate resistance	R_g	$V_{GS}=0V$ $V_{DS}=0V$ $f=1MHz$		2.4		
Total Gate Charge	$Q_{g(10V)}$	$V_{GS}=10V$ $V_{DS}=20V$ $I_D=20A$		21		nC
Total Gate Charge	$Q_{g(4.5V)}$			8.6		
Gate Source Charge	Q_{gs}			5.7		
Gate Drain Charge	Q_{gd}			3		

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Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=20V$ $R_L=1.0$ $R_{GEN}=3.0$				

/ Electrical Characteristic Curve



/ Electrical Characteristic Curve

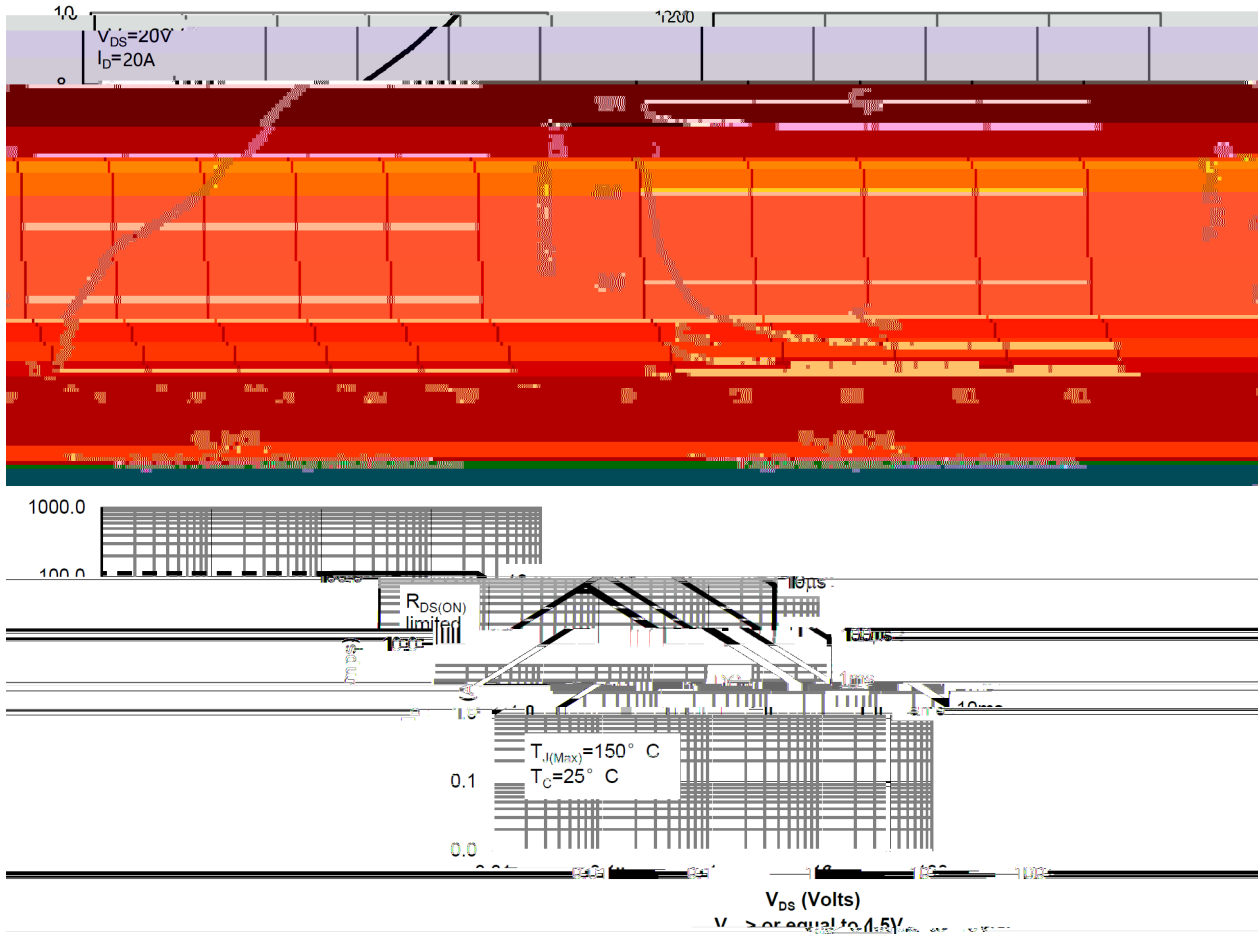
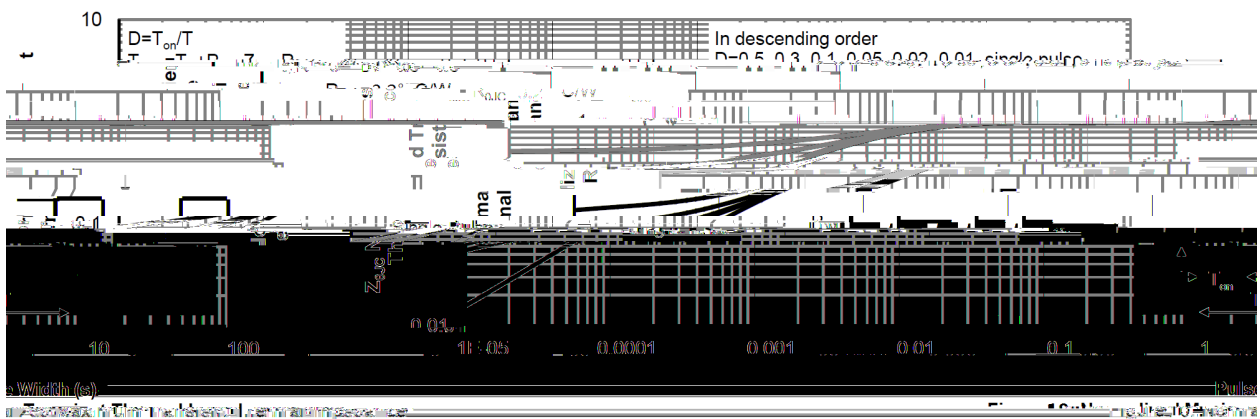
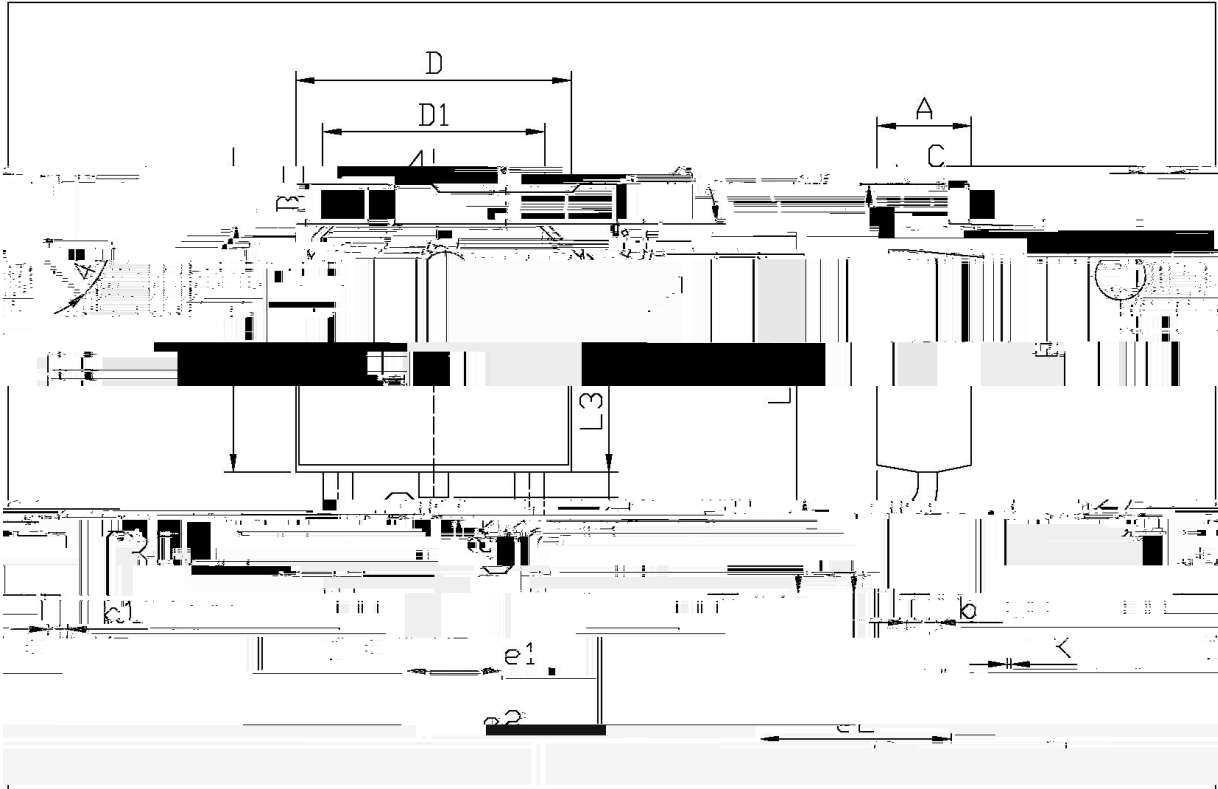


Figure 9: Maximum Forward Biased Safe Operating Area



/ Package Dimensions

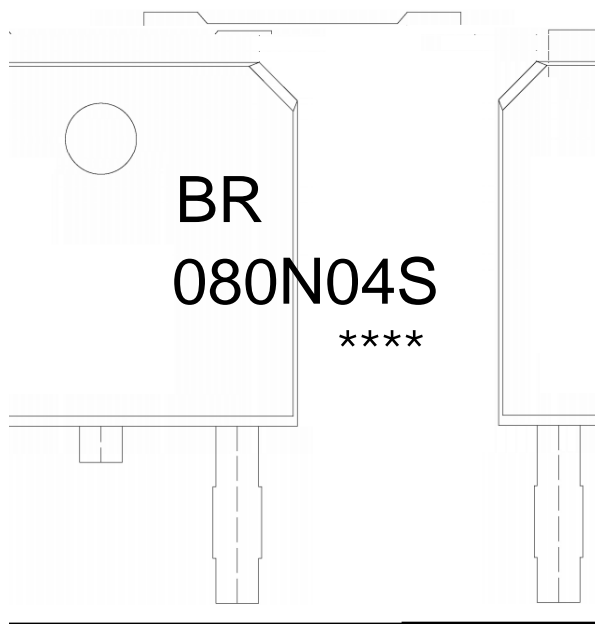


单位: mm

Dimensions, Millimeters		Dimensions, In Millimeters	
Min	Max	Min	Max
2.21	2.34	B	0.95
0.95	1.35	0.70	1.00
0.10	0.15	0.25	0.55
0.00	0.10	D1	5.10
			5.50

T0-252

/ Marking Instructions



BR

080N04S

Note:

BR: Company Code

080N04S: Product Type

****: Lot No. Code, code change with Lot No

B RCS080N04SDP

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