

BRD20N03

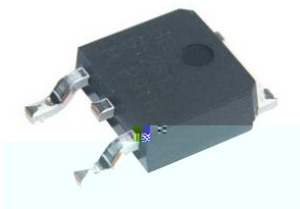
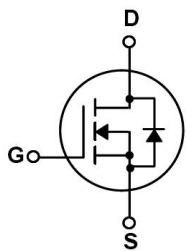
Rev.F Jul.-2019

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

$R_{DS(on)}$ C_{rss}
Low $R_{DS(on)}$, low gate charge, low C_{rss} , fast speed switching.

DC/DC

Suited for low voltage applications such as automotive, DC/DC Converters, and high efficiency switching for power management in portable and battery operated products.



PIN1 G PIN 2

/ Absolute Maximum Ratings(Ta=25)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Drain Current		$I_D(T_c=25^\circ\text{C})$	20	A
Gate-Source Voltage		V_{GS}	± 20	V
Avalanche Current		I_{AS}	10.4	A
Single Pulsed Avalanche Energy		E_{AS}	130	mJ
Power Dissipation		$P_D(T_c=25^\circ\text{C})$	55	W
Junction Temperature Range		T_j	150	
Storage Temperature Range		T_{stg}	-55 ~ 150	
Maximum Junction-to-Ambient	Steady-State	$R_{\theta JA}$	62.7	/W
Maximum Junction-to-Case	Steady-State	$R_{\theta JC}$	2.3	

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0V$ $I_D=250\text{ A}$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V$ $V_{GS}=0V$			1.0	A
		$V_{DS}=30V$ $T_J=150$			50	
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 0.1	A
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=20.0A$		11	13	m
		$V_{GS}=4.5V$ $I_D=10.0A$		16	18	m
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\text{ A}$	1	1.8	3	V
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_F=1.0A$		0.7	1.2	V
Signal Source Resistance	R_g	$F=1\text{MHz}$		1.67		
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0\text{MHz}$		666		pF
Output Capacitance	C_{oss}			26		
Reverse Transfer Capacitance	C_{rss}			63		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=15V$ $V_{GS}=10V$ $R_L=0.75$ $R_{GEN}=3.0$		7		ns
Turn-On Rise Time	t_r			13.5		
Turn-Off Delay Time	$t_{d(off)}$			18.5		
Turn-Off Fall Time	t_f			4		
Total Gate Charge	$Q_{g(10V)}$	$V_{DS}=15V$ $V_{GS}=10V$ $I_D=20.0A$		14		nC
Total Gate Charge	$Q_{g(4.5V)}$			6.5		

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DATA SHEET

Gate-Source Charge	Q_{gs}			3		
Gate-Drain Charge	Q_{gd}			2.5		

/ Electrical Characteristic Curve

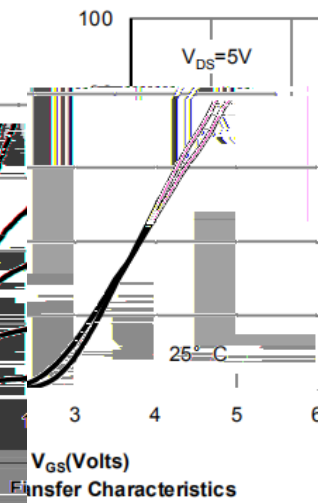
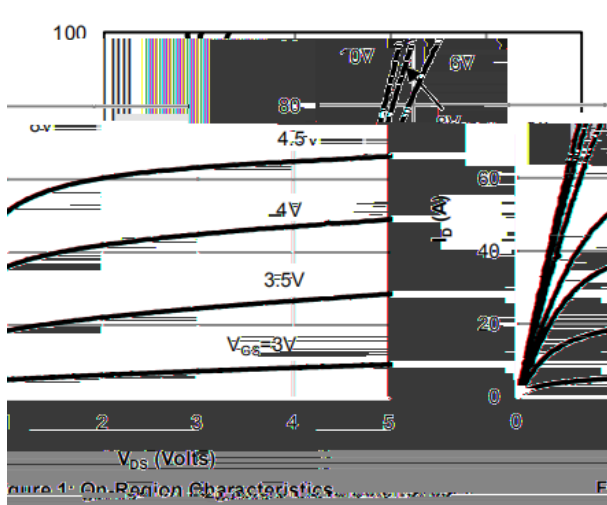


Figure 2: Transfer Characteristics

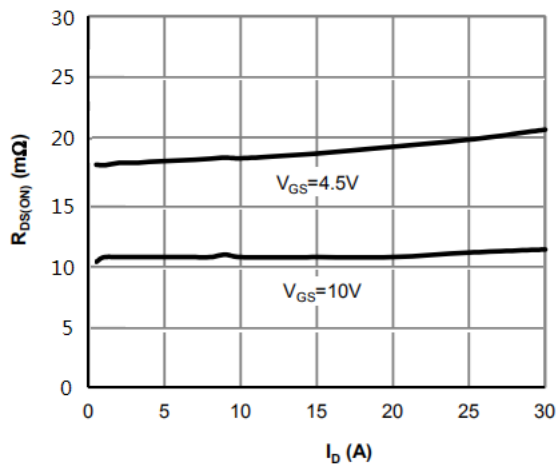


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

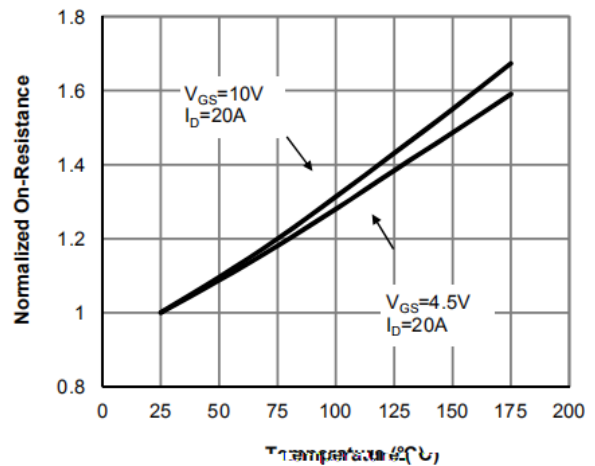


Figure 4: On-Resistance vs. Junction Temperature

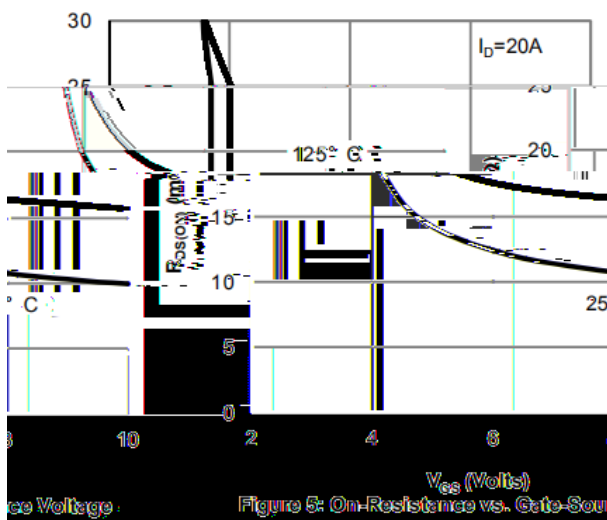


Figure 5: On-Resistance vs. Gate-Source Voltage

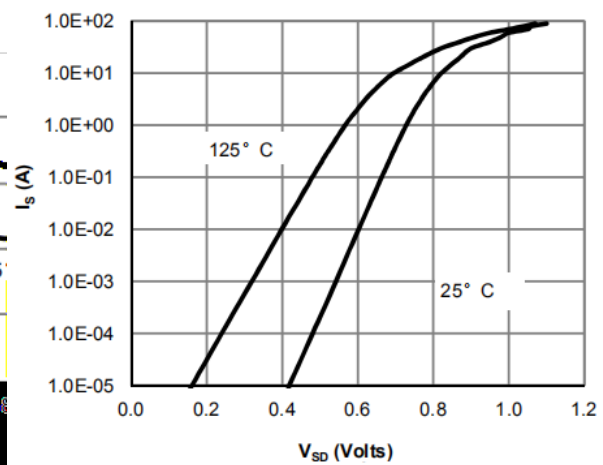
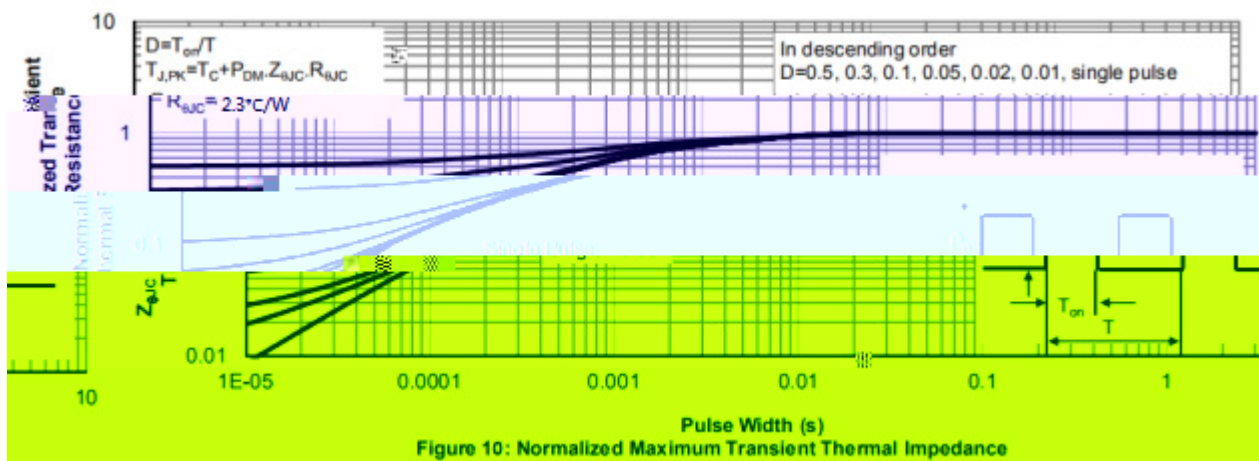
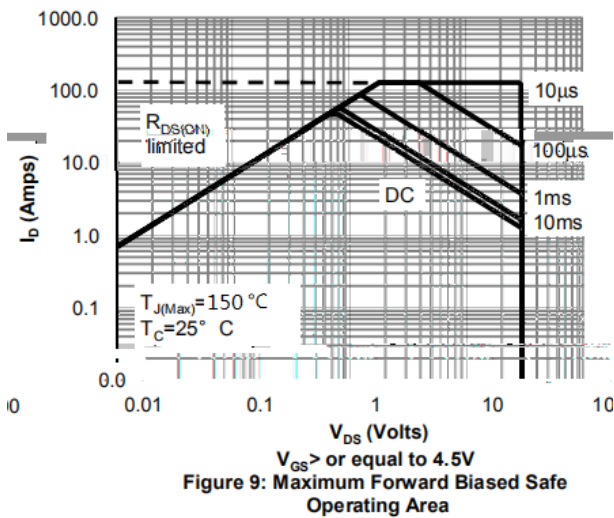
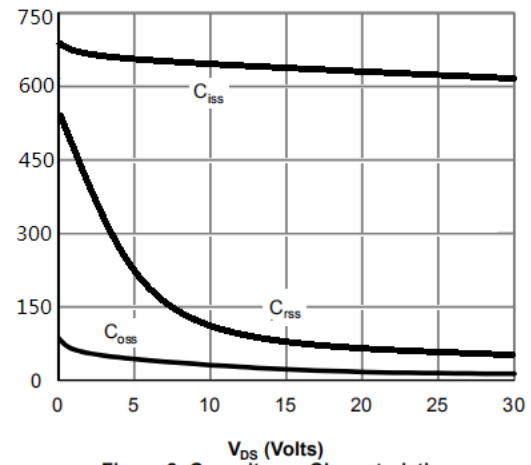
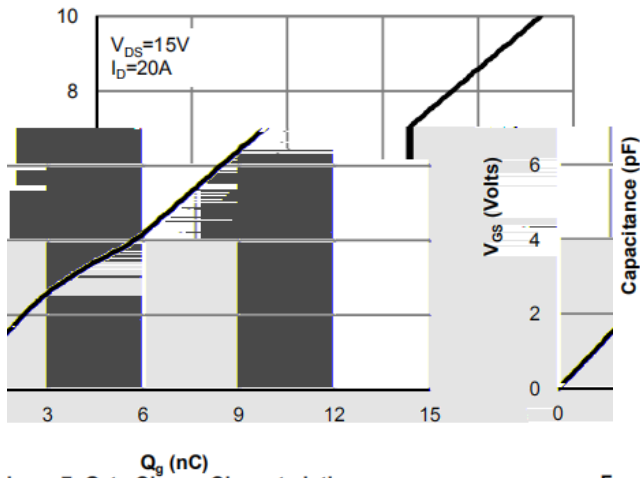
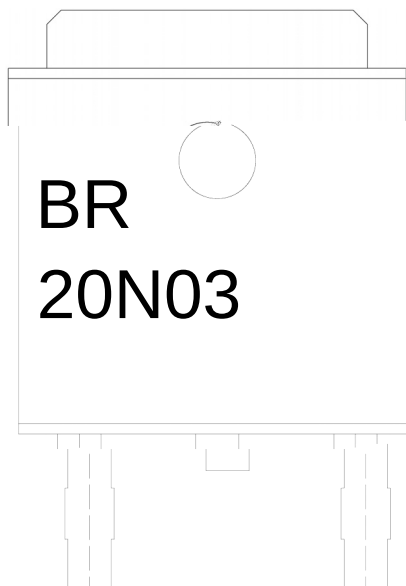


Figure 6: Body-Diode Characteristics

/ Electrical Characteristic Curve



/ Marking Instructions



BR

20N03

Note:

BR: Company Code

20N03: Product Type.

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

