/ Descriptions

TO-252 N MOS

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

/ Features

V_{DS} (V) = 40V

I_D =54A (V_{GS} = 20V)

$R_{DS(ON)}$@10V 8mR(Typ.7.5mR)

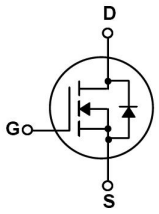
HF Product.

/ Applications

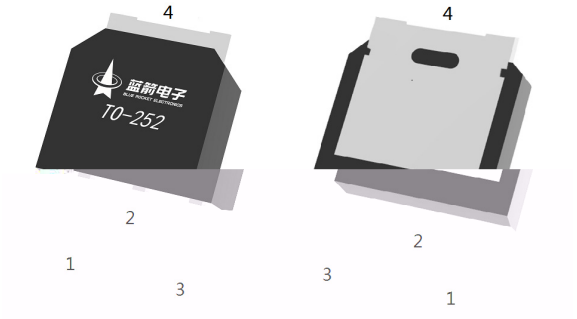
DC/DC

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(Tc=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(Tc=25)	39	W
Operating and Storage Temperature Range		T_J,T_{stg}	-55 to 150	
Junction-to-Ambient	t 10	$R_{\theta JA}$	25	/W
Junction-to-Ambient	Steady-State		55	
Junction-to-Case	Steady-State	$R_{\theta JC}$	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=250μA	40	47		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V	V_{GS}=0V			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V	V_{DS}=0V			±0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}	I_D=250μA	1.0	1.6	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V	I_D=20A		7.5	8	mΩ
		V_{GS}=4.5V	I_D=10A		10	13	mΩ
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V	I_S=1A			1.2	V
Input Capacitance	C_{iss}	V_{DS}=25V f=1.0MHz	V_{GS}=0V		850		pF
Output Capacitance	C_{oss}				115		
Reverse Transfer Capacitance	C_{rss}				30		
Gate resistance	R_g	V_{GS}=0V f=1MHz	V_{DS}=0V		2.4		Ω
Total Gate Charge	$Q_{g(10V)}$	V_{GS}=10V I_D=20A	V_{DS}=20V		21		nC
Total Gate Charge	$Q_{g(4.5V)}$				8.6		
Gate Source Charge	Q_{gs}				5.7		
Gate Drain Charge	Q_{gd}				3		

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

/ Electrical Characteristic Curve

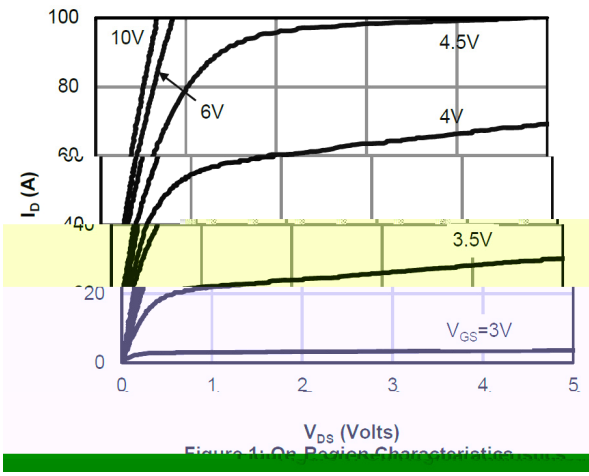


Figure 1: On-Region Characteristics

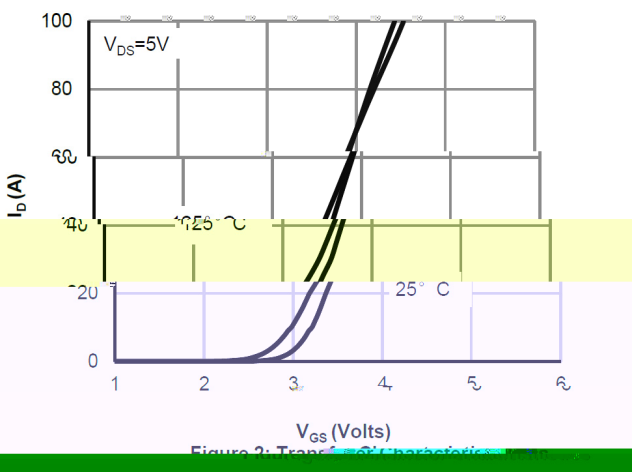


Figure 2: Transfer Characteristics

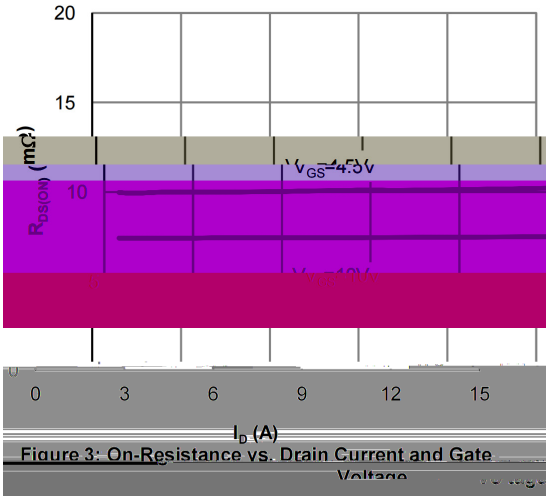


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

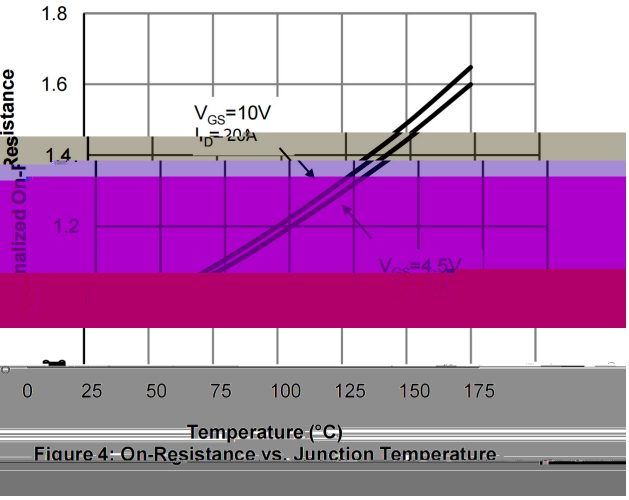
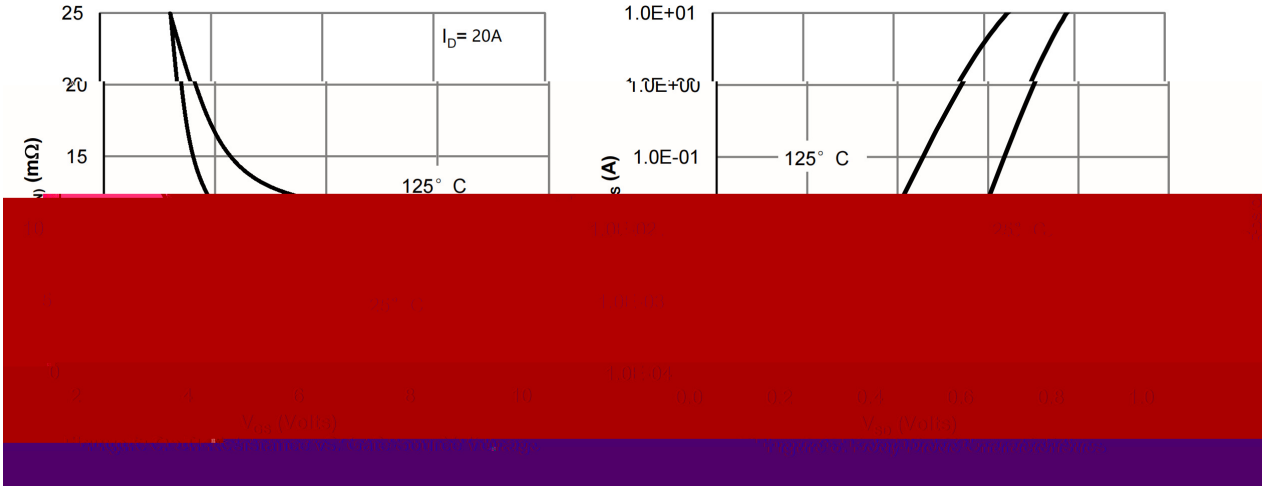
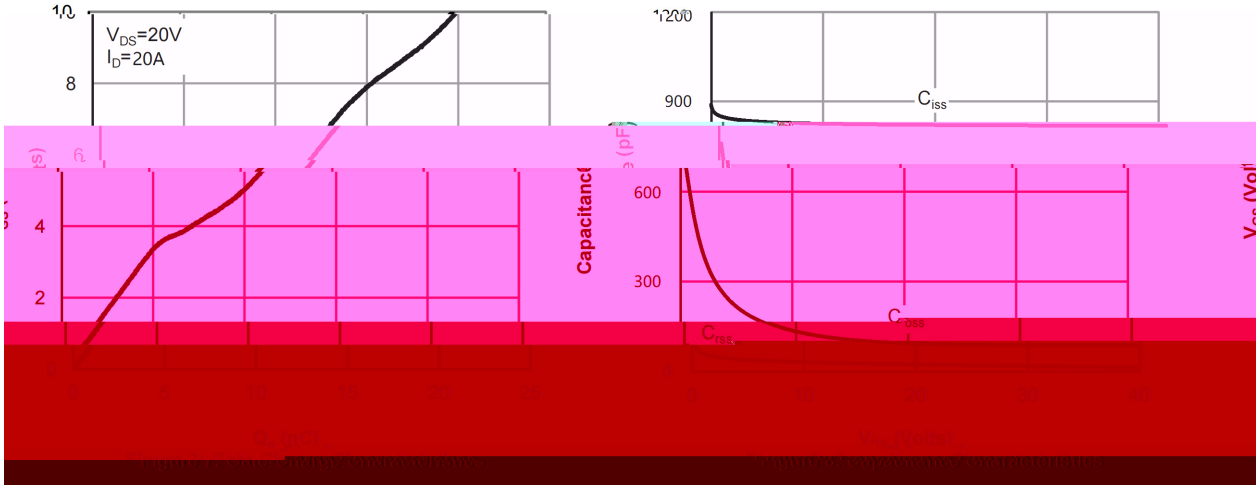
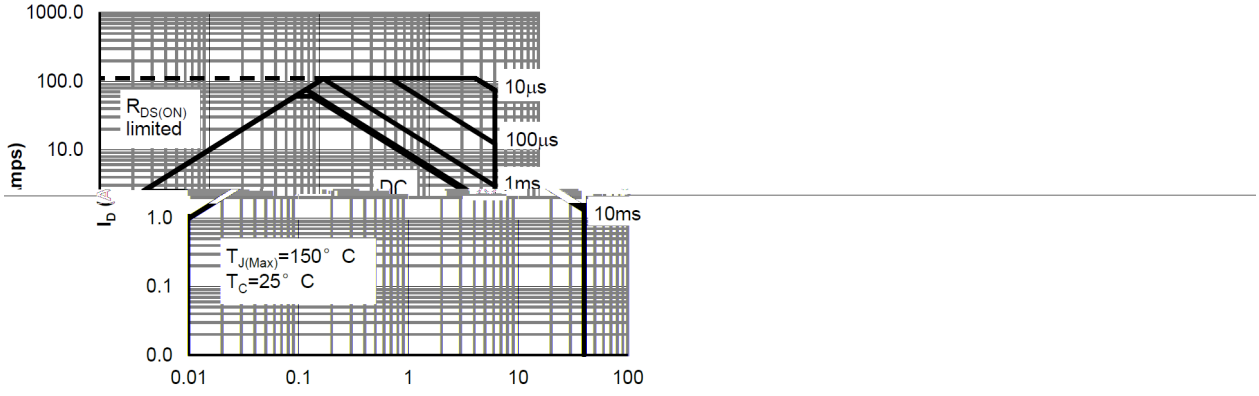


Figure 4: On-Resistance vs. Junction Temperature



/ Electrical Characteristic Curve





V_{GS}> or equal to 4.5V

Figure 9: Maximum Forward Biased Safe Operating Area

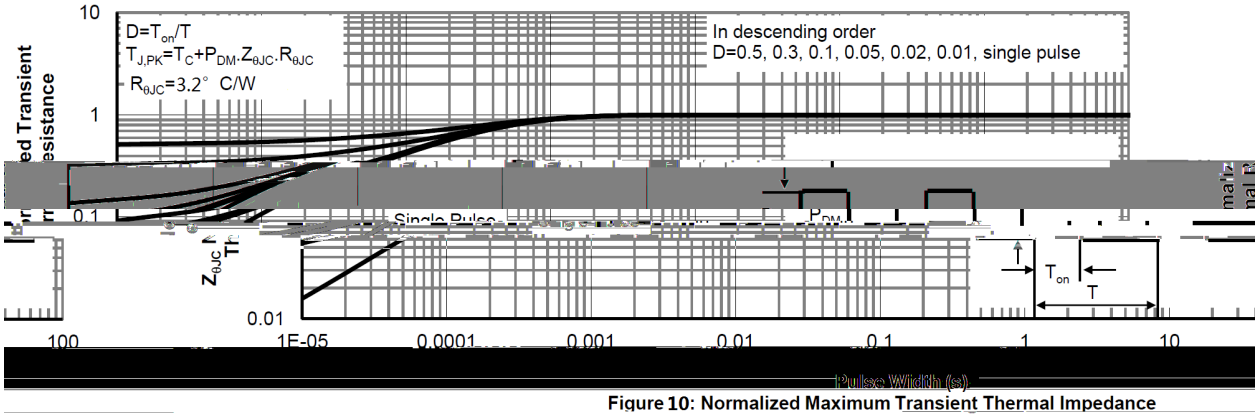
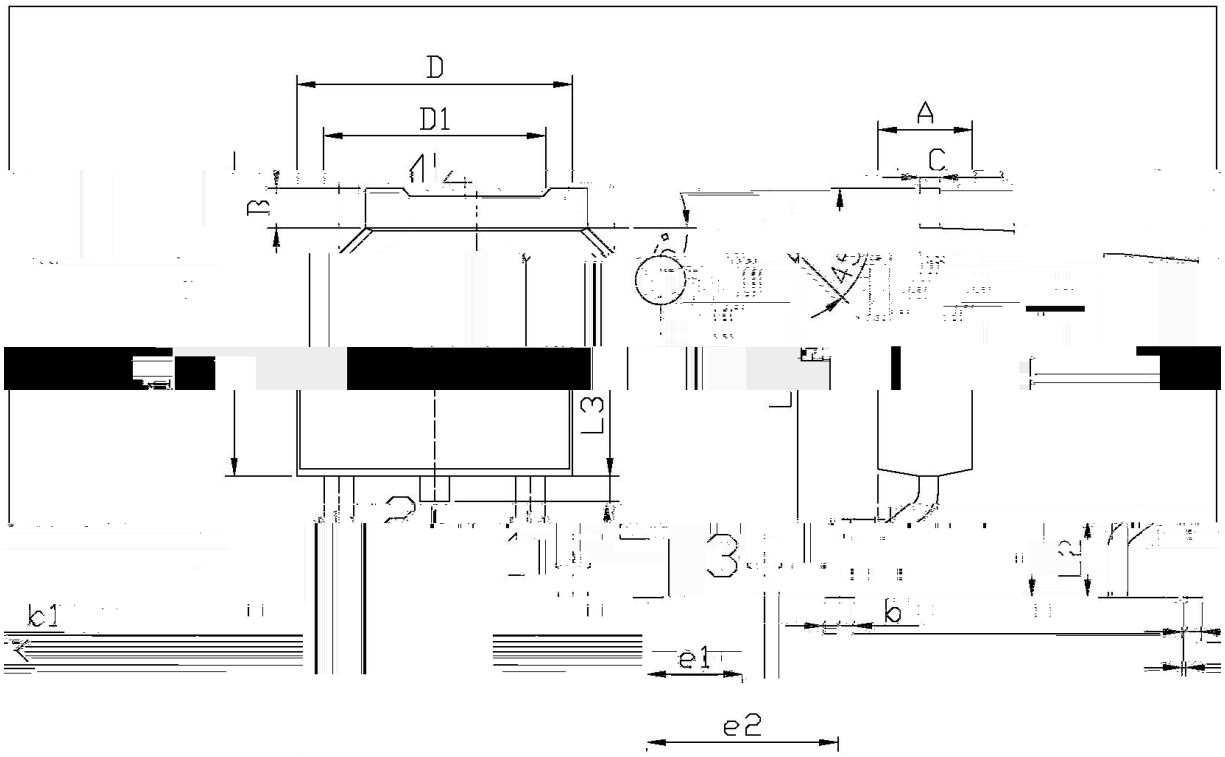


Figure 10: Normalized Maximum Transient Thermal Impedance

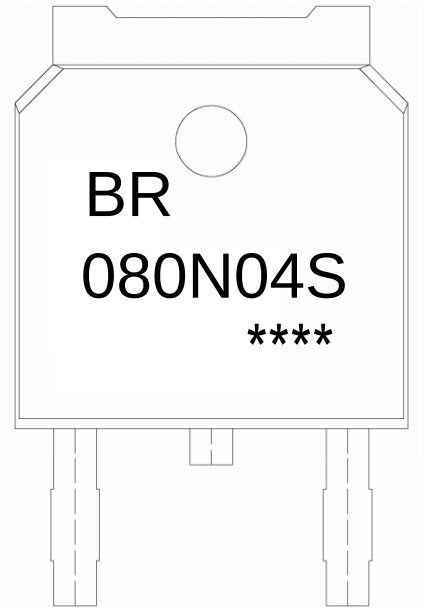
/ Package Dimensions



单位：mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max.		Min.	Max
	6.25		A	2.20	2.40
	2.34		B	0.95	1.25
.85	10.35		b1	0.45	0.55
			L2	1.70	3.00
L3	0.60	0.90	P	6.45	6.75

/ Marking Instructions



BR

080N04S

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Note:

BR:	Company Code
080N04S:	Product Type
****:	Lot No. Code, code change with Lot No

( ) / 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.