5 é / Descriptions

TO-252 .> / / x N ?ú 3 « | • ’ož

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

¤ ª / Features

8* 9 U ┬4 k y > z k) X Y4 k • ¼ , † ½ k —)í D }ož

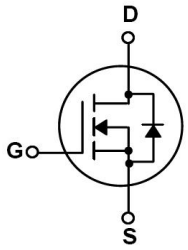
Low $R_{DS(on)}$,low gate charge, low C_{rss}, fast switching, HF Product.

Ð ÷ / Applications

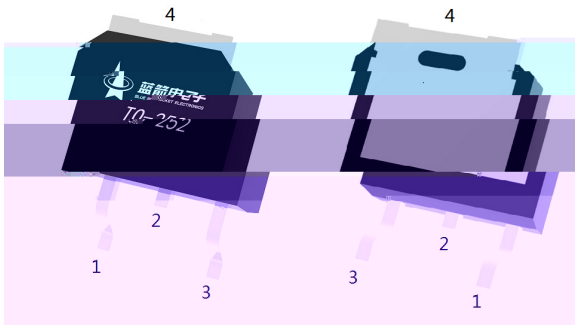
9 z 9 è ò y V ñ èo• *) *) ô Eo• Ž ` ” D } › ä | ô E k á V ñ • } Lož

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

Ã W] Ô · / Equivalent Circuit



• Û - æ / Pinning



PIN1 y G PIN 2 y D PIN 3 y S PIN 4 y D

, M V / Marking

• - ~ ª ¢ož

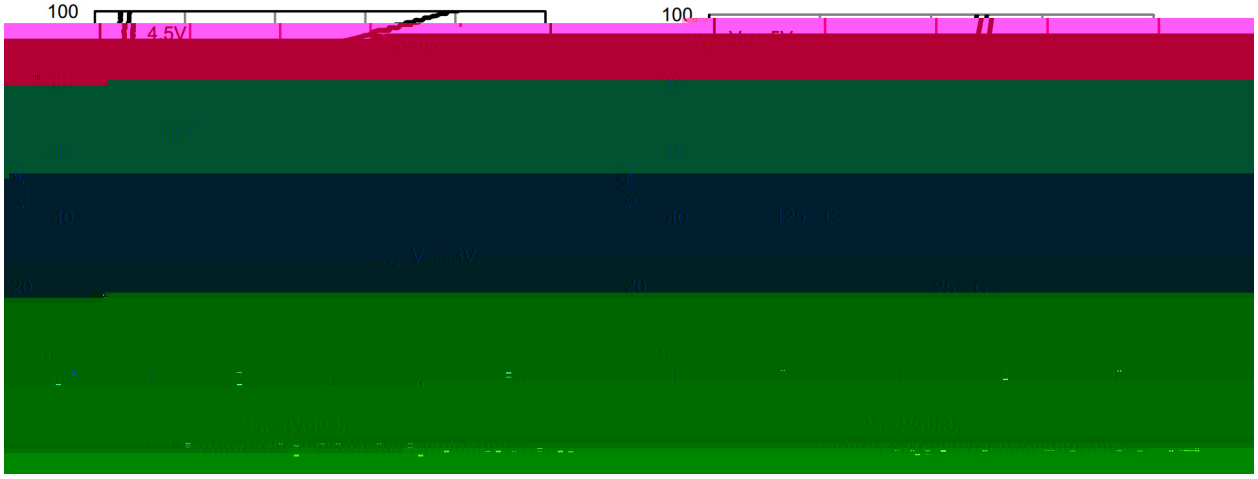
See Marking Instructions.

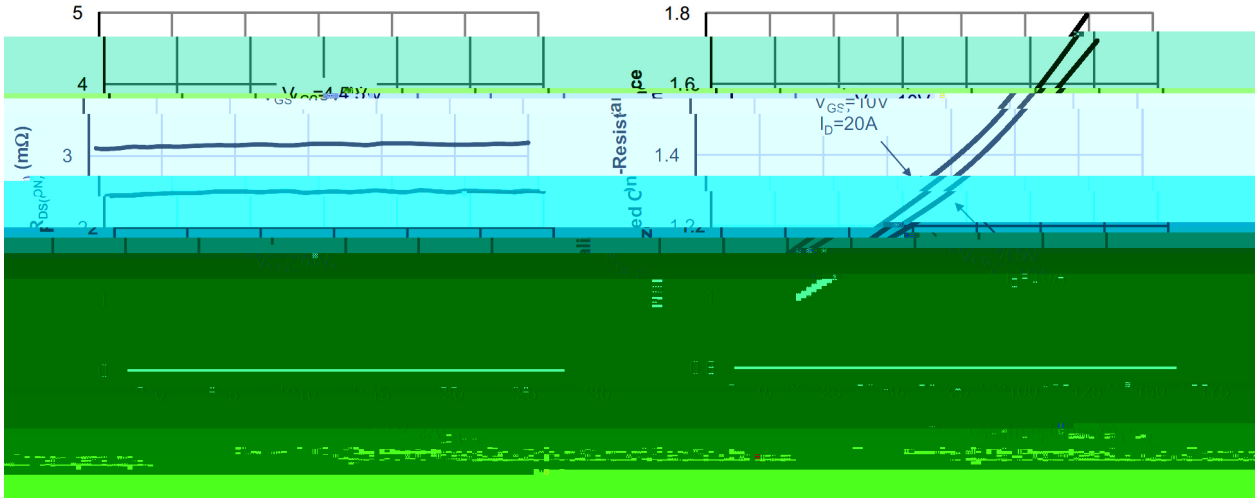
@ ƒ Parameter		… Z Symbol	ƒ › Rating	% y Unit
Drain-Source Voltage		V_{DSS}	40	V
Drain Current		I_D(Tc=25)	150	A
Drain Current - Pulsed		I_{DM}	304	A
Gate-Source Voltage		V_{GS}	f 20	V
Avalanche Current		I_{AS}	33	A
Single Pulsed Avalanche Energy(L=0.5mH)		E_{AS}	435	mJ
Power Dissipation		P_D(Tc=25)	120	W
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	
Thermal Resistance-Junction to Ambient	t 0 10s	R ©JA	20	/W
	Steady-State		50	
Thermal Resistance-Junction to Case	Steady-State	R ©JC	1.04	

@ ƒ Parameter	… Z Symbol	y ¡ Ú ^ Test Conditions	Â 4 › Min	Á º › Typ	Â Ý › Max	% y Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250 A	40			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V V_{GS}=0V			1.0	A
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V V_{DS}=0V			f 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250 A	1.0	1.7	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=20A		2.5	3.0	m
		V_{GS}=4.5V I_D=10A		3.1	5.0	
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=1A			1.4	V
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V, f=1MHz		1.16		
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}GS				

@ *f* Parameter	… Z Symbol	y ¡ Ú ^ Test Conditions	Â 4 › Min	Á º › Typ	Â Ý › Max	% y Unit
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V V_{DS}=20V R_L=1 ¡ R_{GEN}=3 ¡		11		ns
Turn-On Rise Time	t_r			11		
Turn-Off Delay Time	$t_{d(off)}$			40		
Turn-Off Fall Time	t_f			10		

Ô ? d • Ž ¢ / Electrical Characteristic Curve





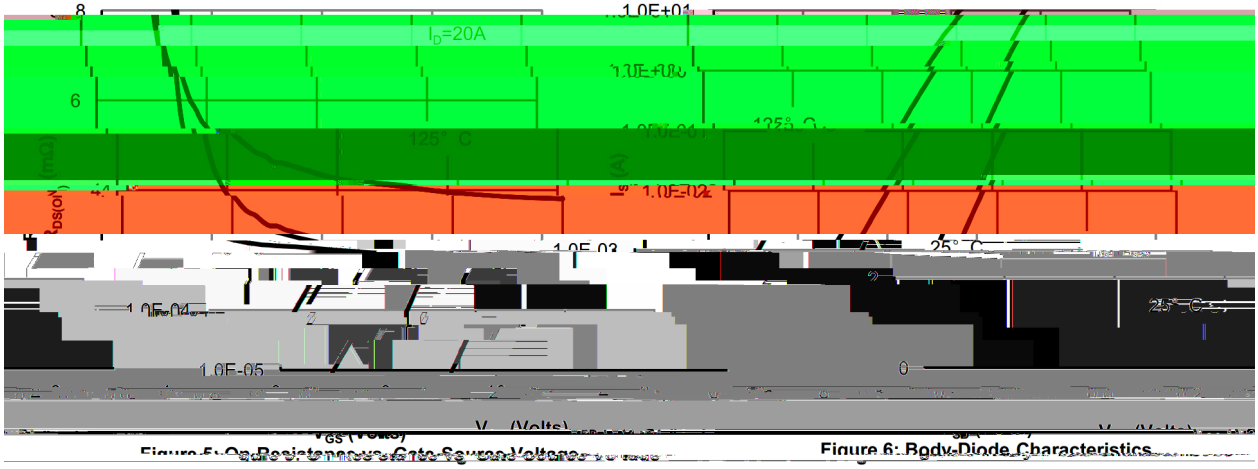
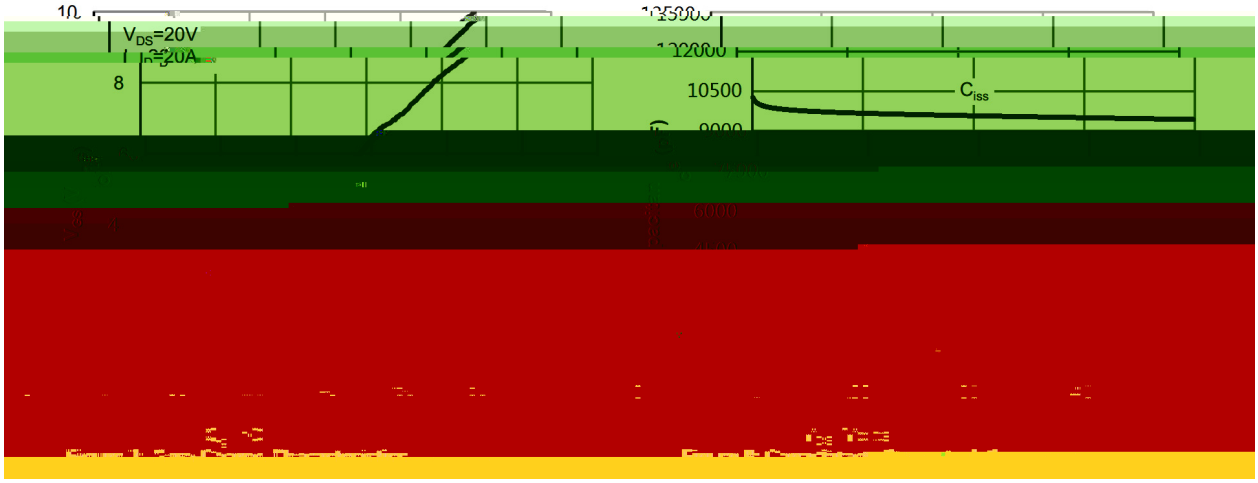
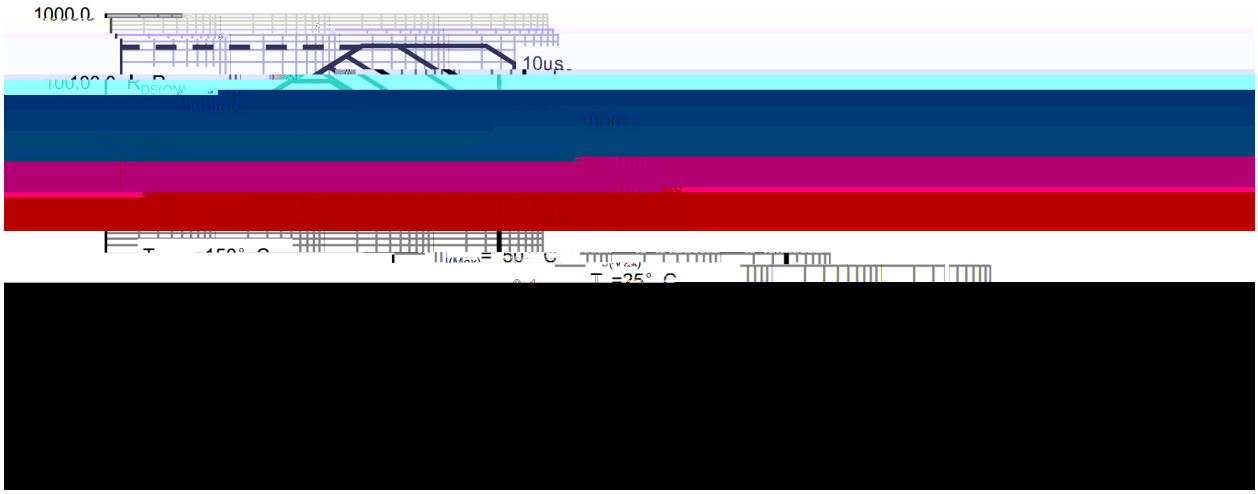


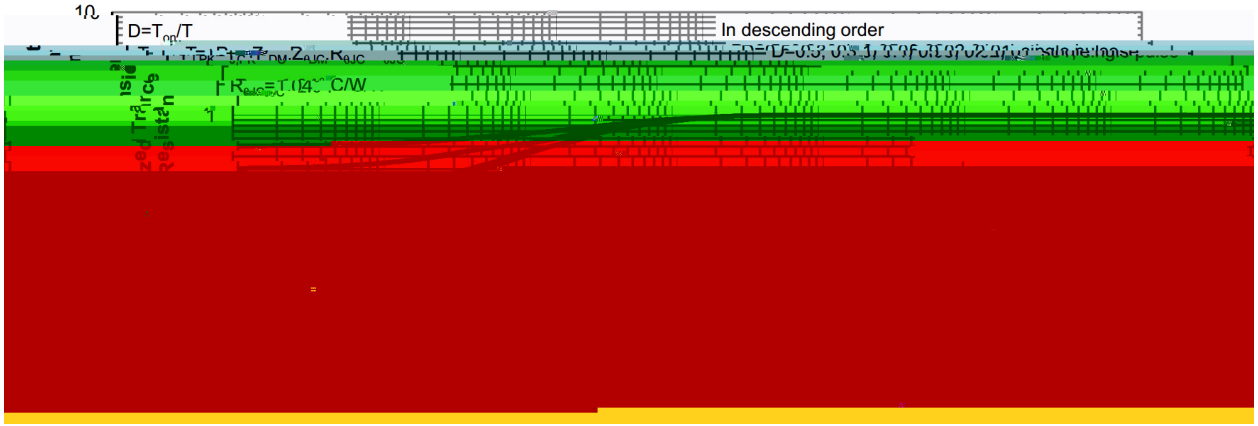
Figure 5: On-Resistance vs. Gate-Source Voltage

Figure 6: Body-Diode Characteristics

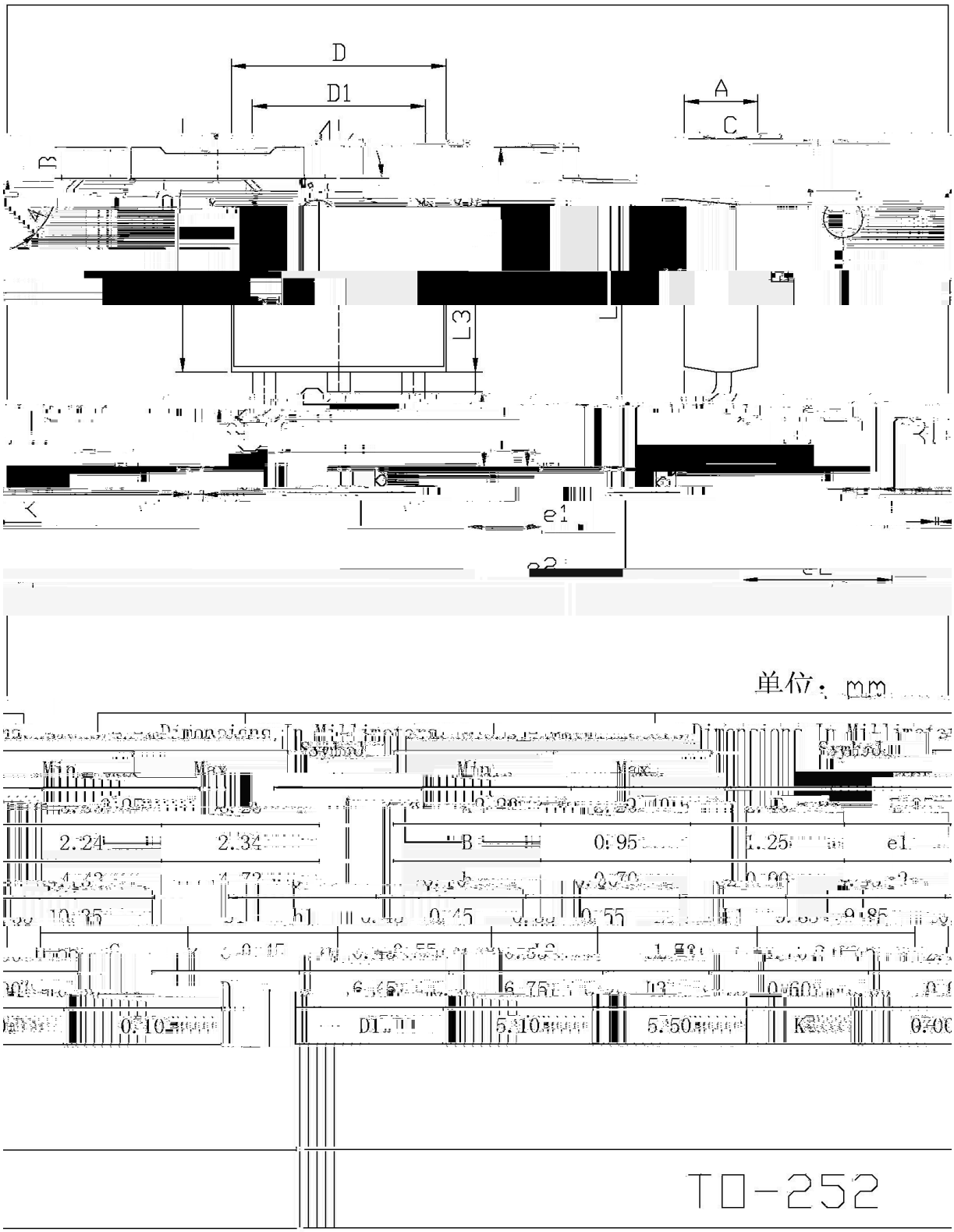
Ô ? d • Ž ¢ / Electrical Characteristic Curve



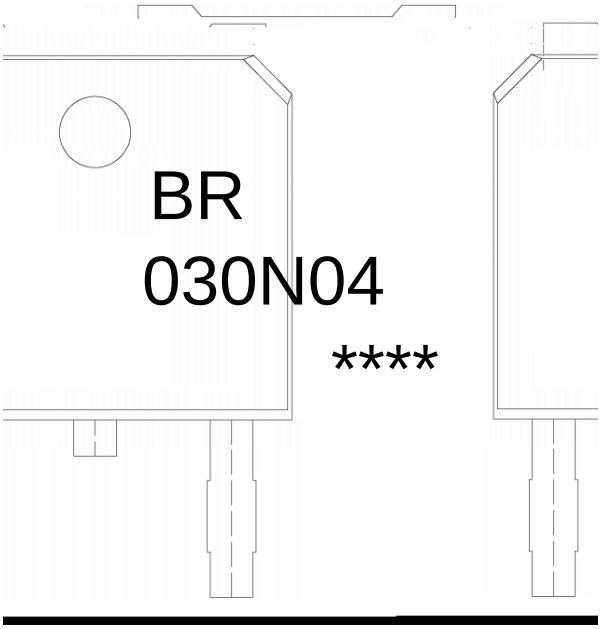




Ø ¤ =) ¢ / Package Dimensions



, M y ƒ / Marking Instructions



ª ¢ y

BR y ¸ [W A

030N04 y º Z W A

y ÿ D Z W A k š ÿ D Z J

Note:

BR: Company Code

030N04: Product Type Code

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

š WD t ... • Ž ¢ (x /) / : K S V K X G Z [X K 6 X U L O R K L U X / 8 8 K L R U] 9 U R J K X O T M 6

ª ¢ y

1o• Ä ½ “ † 150 ½180 - k ž • 60 ½90sec;

2o• Q › “ † 245 r 5 - k ž • 4 Ò 5 r 0.5sec;

3o•D N ò i Ò 0 , † 2 ½10 - /sec.

Note:

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

2.Peak Temp.:245 r 5 - , Duration:5 r 0.5sec.

3. Cooling Speed: 2~10 - /sec.

ÂD /Cã p ¯ »] / Resistance to Soldering Heat Test Conditions

“ † y 260 r 5 -	ž • y 10 r 1 sec.	Temp.:260±5	Time:10±1 sec

G P á / Packaging SPEC.

2 & x / REEL