/ Descriptions

TO-252 N

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

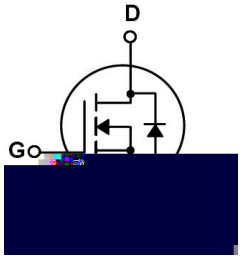
/ Features

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

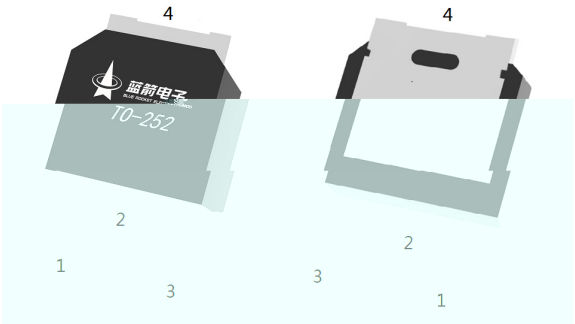
/ Applications

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

/ 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}	60	V
Drain Current	I_D(Tc=25)	50	A
Drain Current - Pulsed	I_{DM}	200	A
Gate-Source Voltage	V_{GS}	±20	V
Avalanche Current	I_{AS}	20	A
Single Pulsed Avalanche Energy	E_{AS}	170	mJ
Power Dissipation	P_D(Tc=25)	60	W
Storage Temperature Range	T_{stg}	-55 150	
Thermal Resistance-Junction to Case	R JC	2.1	/W
Thermal Resistance-Junction to Ambient	R JA	50	

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	60	66		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V V_{GS}=0V			1.0	μA
		V_{DS}=48V T_C=150			10	
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	1.7	3	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V I_D=25A		11.8	15	mΩ
		V_{GS}=4.5V I_D=18A		15.5	20	
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V I_S=1A			1.25	V
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V, f=1MHz		1.49		Ω
Input Capacitance	C_{iss}	V_{DS}=25V V_{GS}=0V f=1.0MHz		1010		pF
Output Capacitance	C_{oss}			250		
Reverse Transfer Capacitance	C_{rss}			280		
Total Gate Charge	Qg(10V)	V_{GS}=10V V_{DS}=30V I_D=20A		47.5	68	nC
Total Gate Charge	Q_g(4.5V)			24	35	
Gate Source Charge	Q_{gs}			6		
Gate Drain Charge	Q_{gd}			14.5		

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V V_{DS}=30V R_L=1.5 R_{GEN}=3Ω		8		ns
Turn-On Rise Time	t_r			5		
Turn-Off Delay Time	$t_{d(off)}$			30		
Turn-Off Fall Time	t_f			5.5		

/ Electrical Characteristic Curve

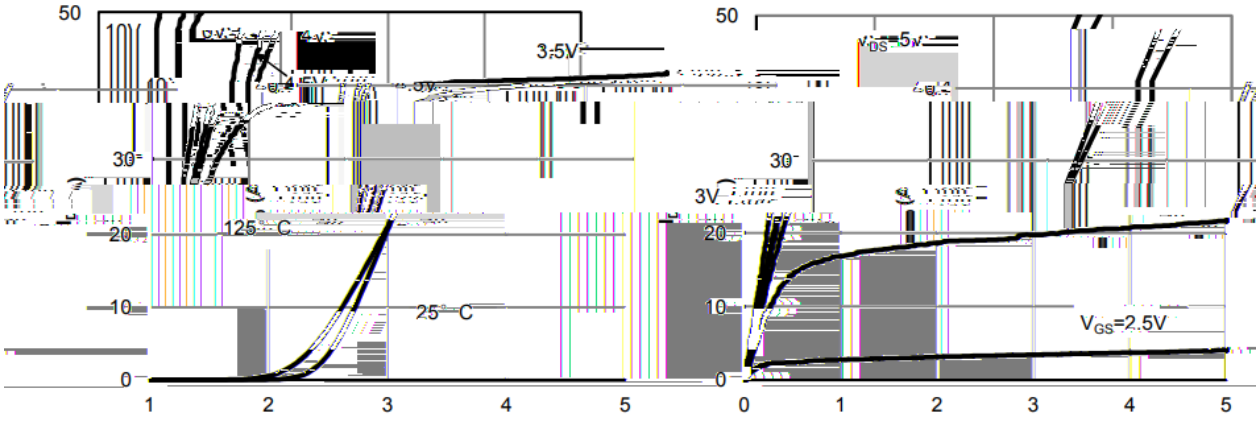
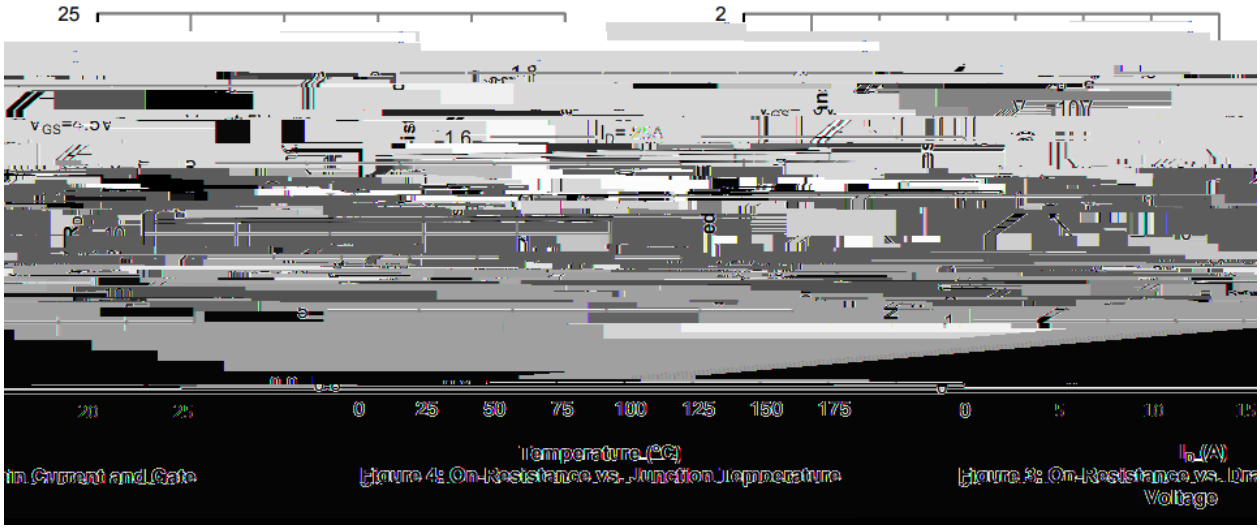


Figure 2: Transfer Characteristics

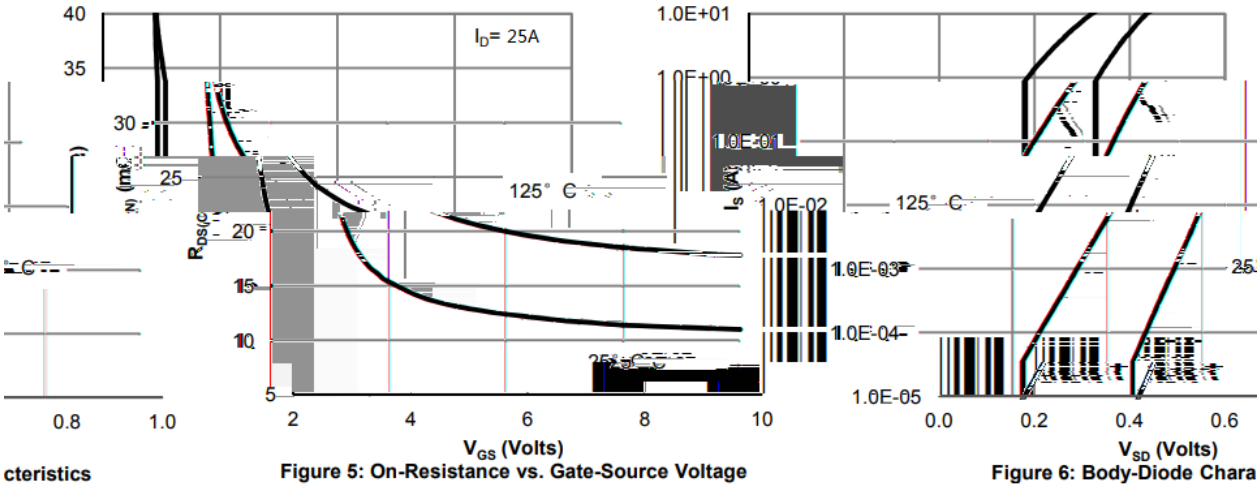
Figure 1: On-Region Characteristics



in Current and Gate

Figure 4: On-Resistance vs. Junction Temperature

Figure 3: On-Resistance vs. Dra
Voltage

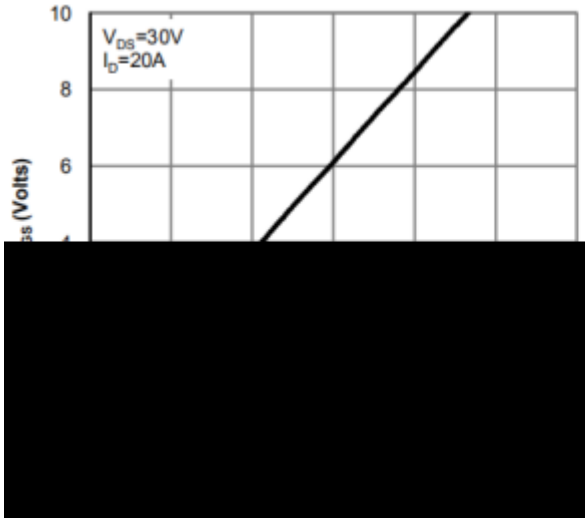


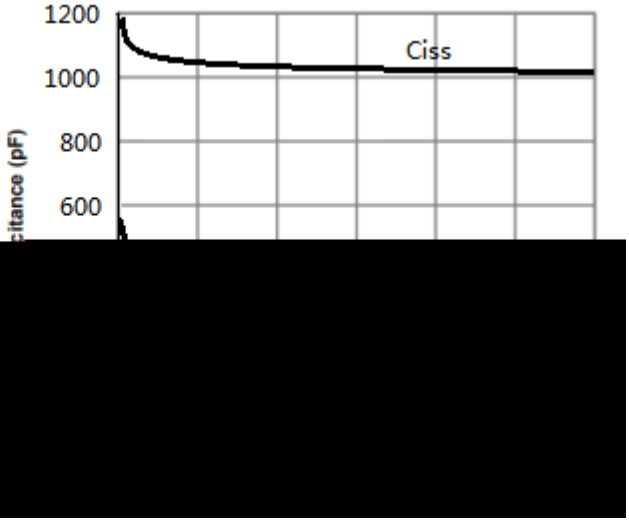
cteristics

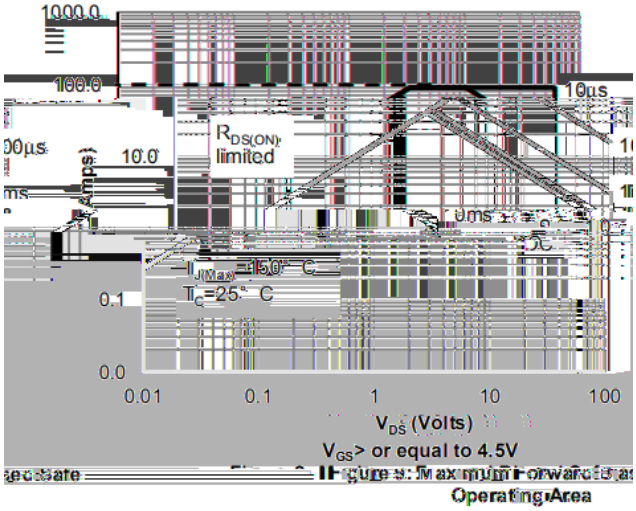
Figure 5: On-Resistance vs. Gate-Source Voltage

Figure 6: Body-Diode Chara

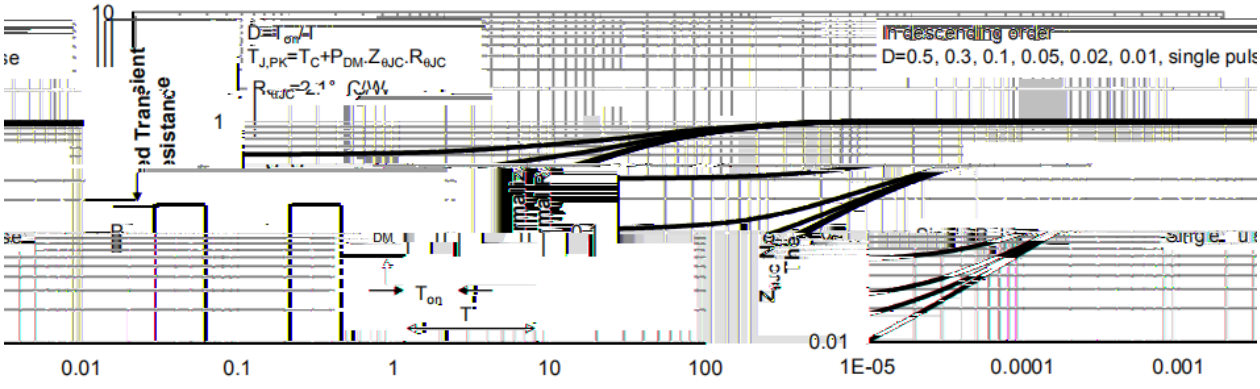
/ Electrical Characteristic Curve







Operating Area

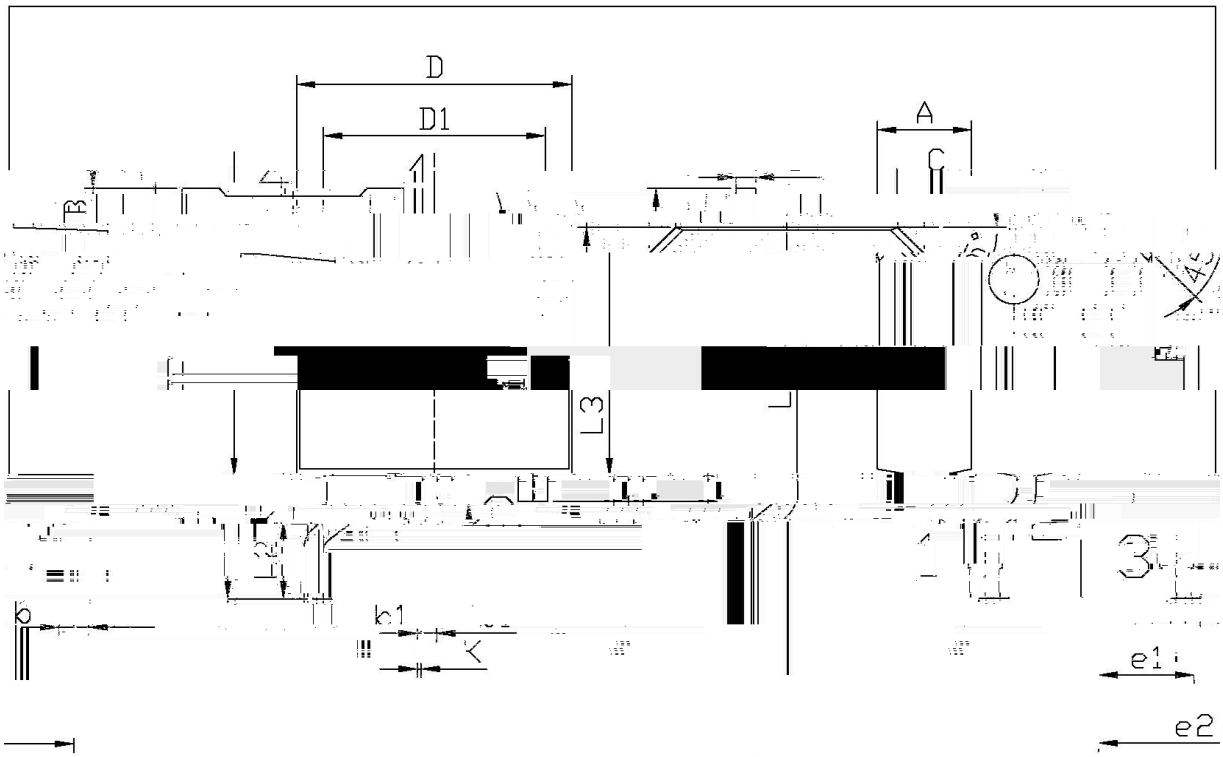


Pulse Width (s)

Maximum Transient Thermal Impedance

Figure 10 : Normalized M

/ Package Dimensions

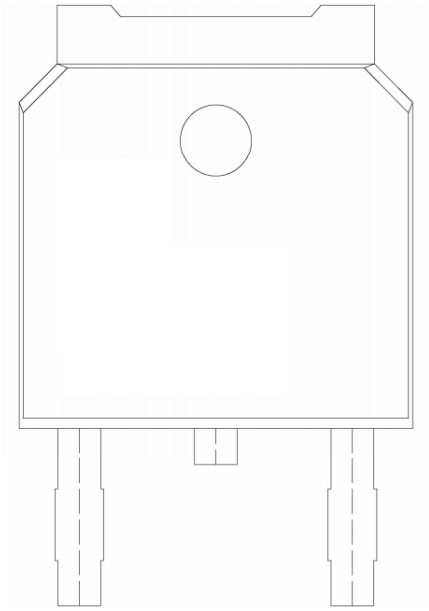


单位：mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	2.20	2.40	F		5.95
B	0.95	1.25	e1	2.24	
b	0.70	0.90	H	9.85	
b1	0.45	0.55	L	1.70	2.00
C	0.45	0.55	L3	0.60	0.90
D	6.45	6.75	K	0.00	0.10
D1	5.10	5.50			

TO-252

/ Marking Instructions



Note:

1 150 180 60 90sec;

2 245 5 5 0.5sec;

3 2 10 /sec.

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

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

3. Cooling Speed: 2~10 /sec.