

/ Descriptions

TO-252 N MOS

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

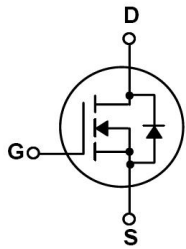
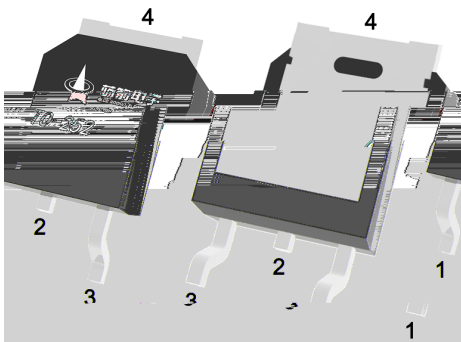
/ Features $V_{DS}=500V$ $I_D=3A$ $R_{DS(ON)}@10V \leq 3.5$ (Typ. 2.2)

Fast Switching.

HF Product.

/ Applications

These devices are well suited for power switch circuit of adaptor and charger, intergrate fast recovery diode.

/ 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_{DS}	500	V
Drain Current	$I_D(T_c=25^\circ\text{C})$	3	A
Drain Current - Pulsed	I_{DM}	6	A
Gate-Source Voltage	V_{GS}	± 30	V
Single Pulsed Avalanche Energy	E_{AS}	115.6	mJ
Avalanche Current	I_{AS}	5.1	A
Power Dissipation	$P_D(T_c=25^\circ\text{C})$	45	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	
Junction to Ambient	$R_{\theta JA}$	100	/W
Junction to Case	$R_{\theta JC}$	2.78	/W

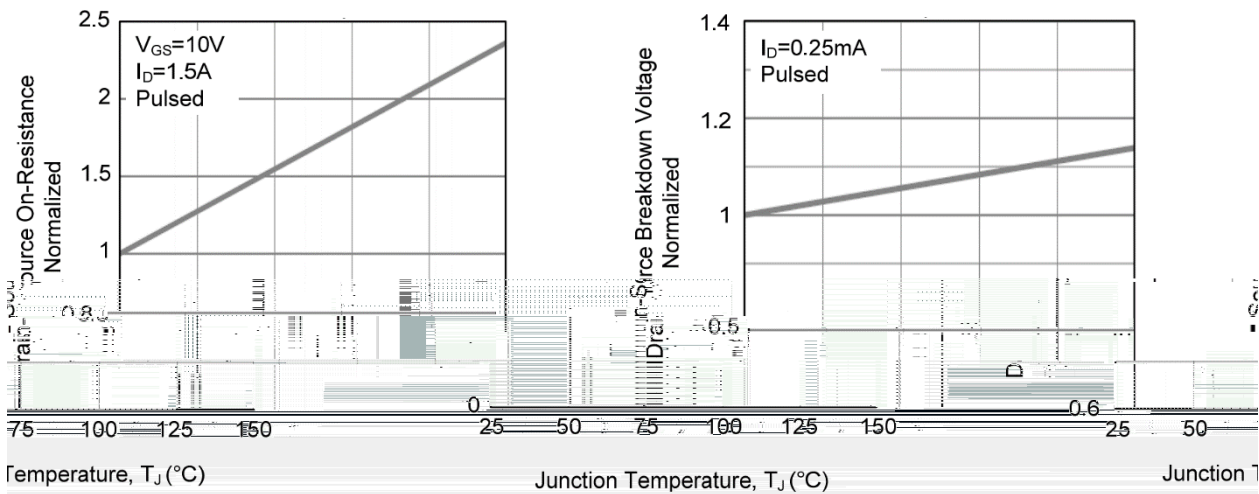
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0V$ $I_D=250\text{ A}$	500			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=500V$ $V_{GS}=0V$			1	A
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 30V$ $V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\text{ A}$	2.0		4.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=1.5A$		2.2	3.5	
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=3.0A$			1.4	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		260		pF
Output Capacitance	C_{oss}			135		
Reverse Transfer Capacitance	C_{rss}			4		
Total Gate Charge	Q_G	$V_{DS}=400V$ $I_D=3.0A$ $V_{GS}=10V$		12.5		nC
Gate-Source Charge	Q_{GS}			3.2		
Gate-Drain Charge	Q_{GD}			4.2		

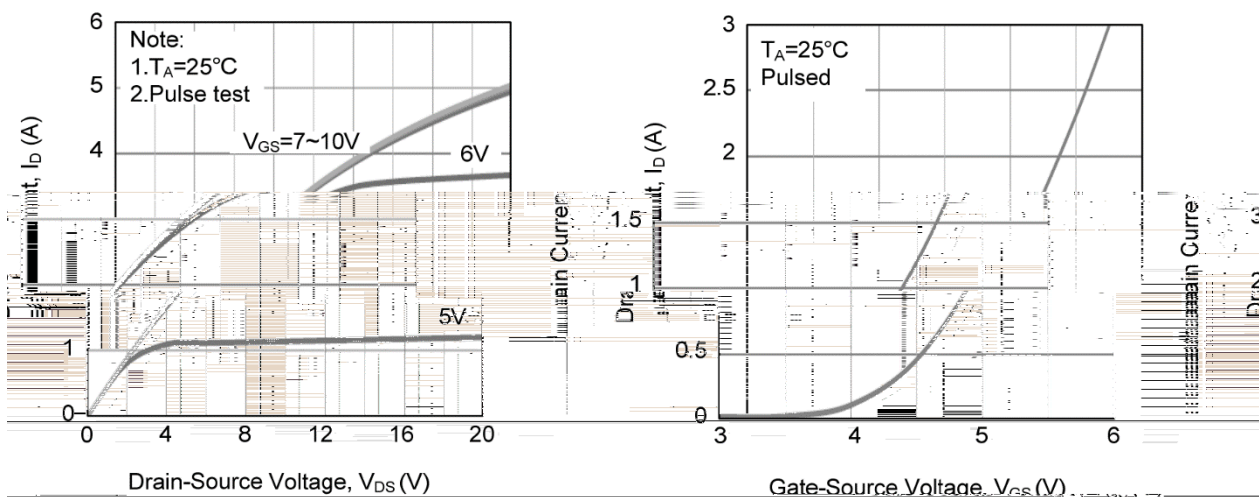
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=100V$ $I_D=3.0A$ $V_{GS}=10V$ $R_G=25$		5.2		ns
Turn-On Rise Time	t_r			20.3		
Turn-Off Delay Time	$t_{d(off)}$			45		
Turn-Off Fall Time	t_f			28		
Maximum Continuous Drain-Source Diode Forward Current	I_S				3	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}				6	A
Reverse Recovery Time	t_{rr}	$V_{GS}=0V$ $I_S=3.0A$ $dI_F/dt=100 A/s$		84		ns
Reverse Recovery Charge	Q_{rr}			0.8		μC

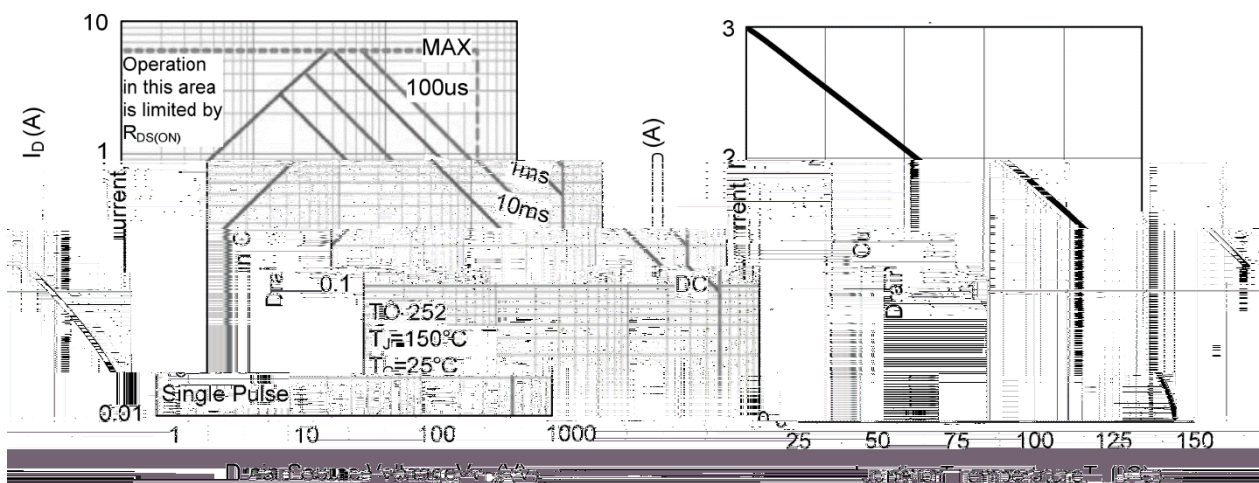
/ Electrical Characteristic Curve



1. Drain-Source On-Resistance vs. Junction Temperature 2. Drain-Source Breakdown Voltage vs. Junction Temperature

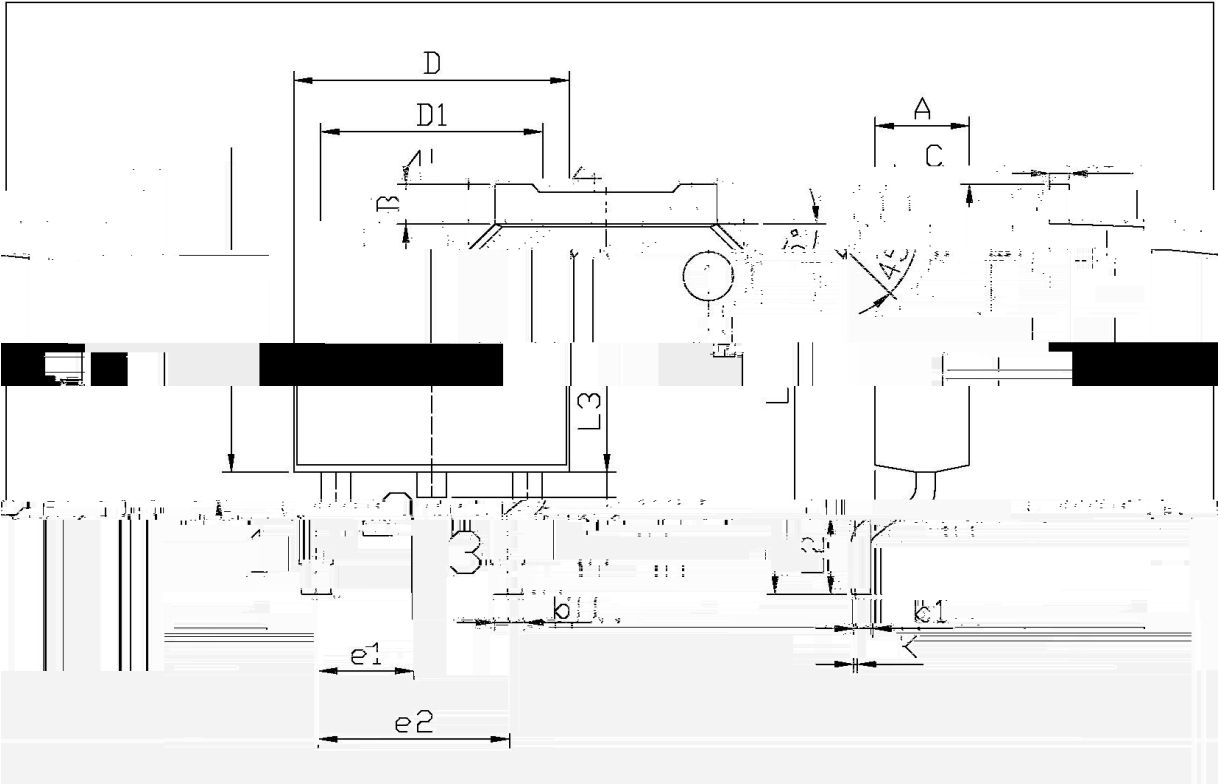


3. Drain Current vs. Drain-Source Voltage 4. Drain Current vs. Gate-Source Voltage



5. Drain Current vs. Drain-Source Voltage 6. Drain Current vs. Junction Temperature

/ Package Dimensions



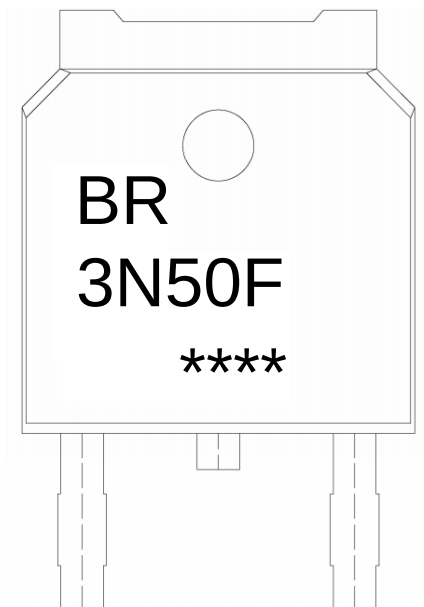
单位: mm

Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	6.25	6.25	E	2.40	5.95
B	2.34	0.95	e1	1.25	2.24
C	4.73	0.40	e2	0.40	1.42
D	9.85	10.35	L1	0.45	0.55
D1	6.45	0.45	L2	1.20	1.70
L1	0.60	0.90	L3	6.45	6.75
K	0.00	0.10	b1	0.10	5.50

-252

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/ Marking Instructions



BR

3N50F

Note:

BR: Company Code

3N50F: Product Type Code

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

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

- 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.

/ Resistance to Soldering Heat Test Conditions

260±5 10±1 sec. Temp.:260±5 Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type	Units					Dimension (unit mm ³)		
	Units/Reel /	Reels/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Reel	Inner Box	Outer Box