

/ Descriptions

TO-252 N MOS

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

/ Features

 $V_{DS}=500V$ $I_D=3A$ $R_{DS(ON)}@10V$ 3.5Ω(Typ. 2.8Ω)

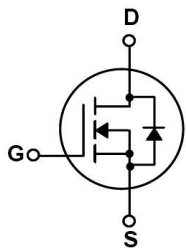
Fast Switching.

HF Product.

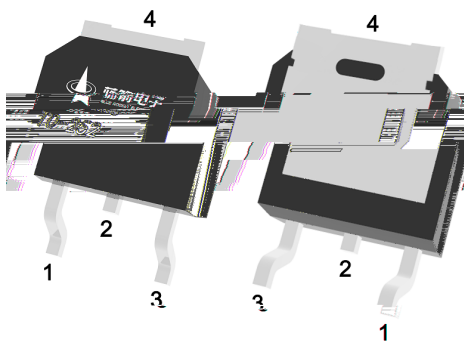
/ Applications

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}	90	mJ
Avalanche Current	I_{AS}	4.5	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_{JA}	100	/W
Junction to Case	R_{JC}	2.78	/W

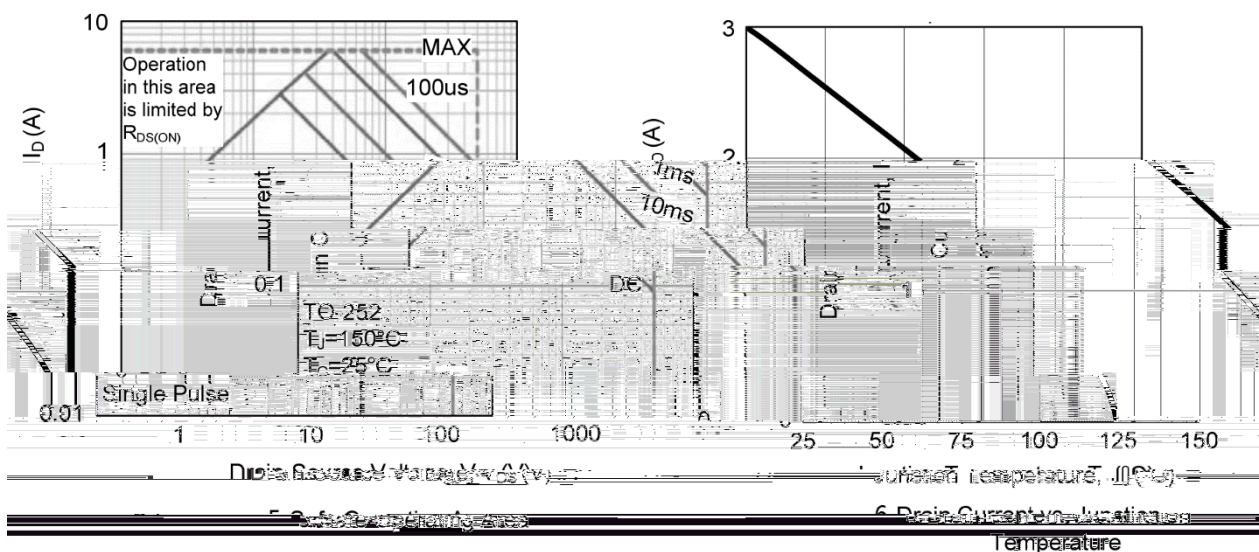
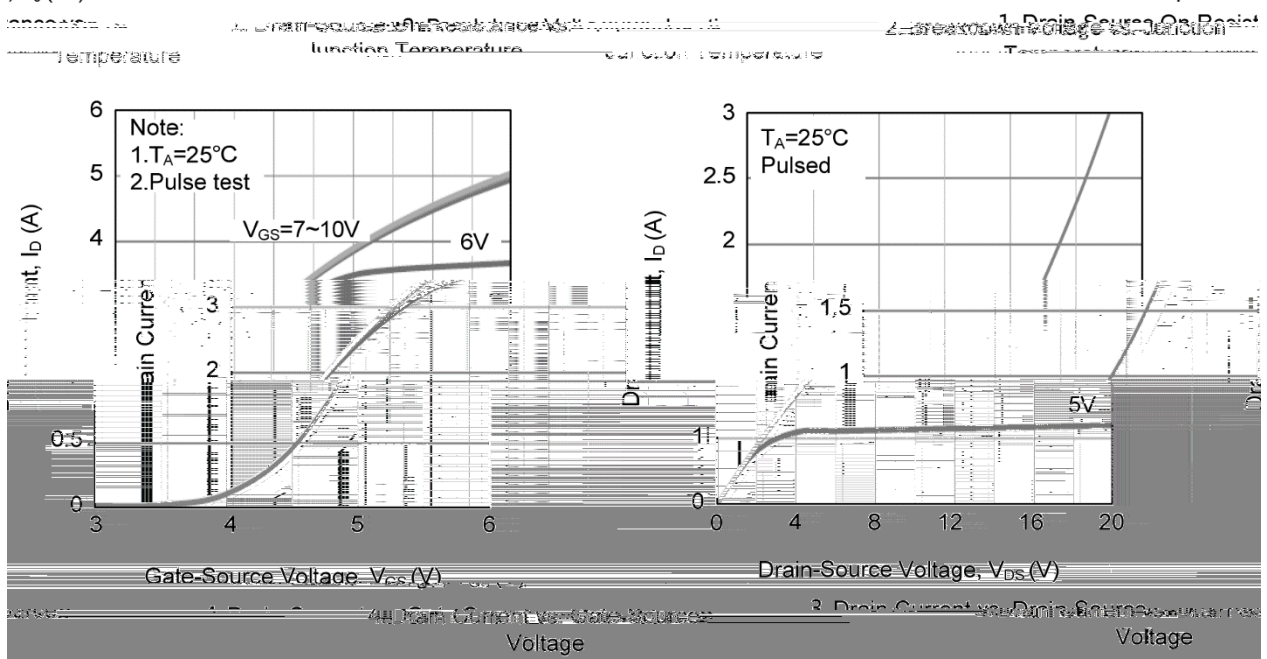
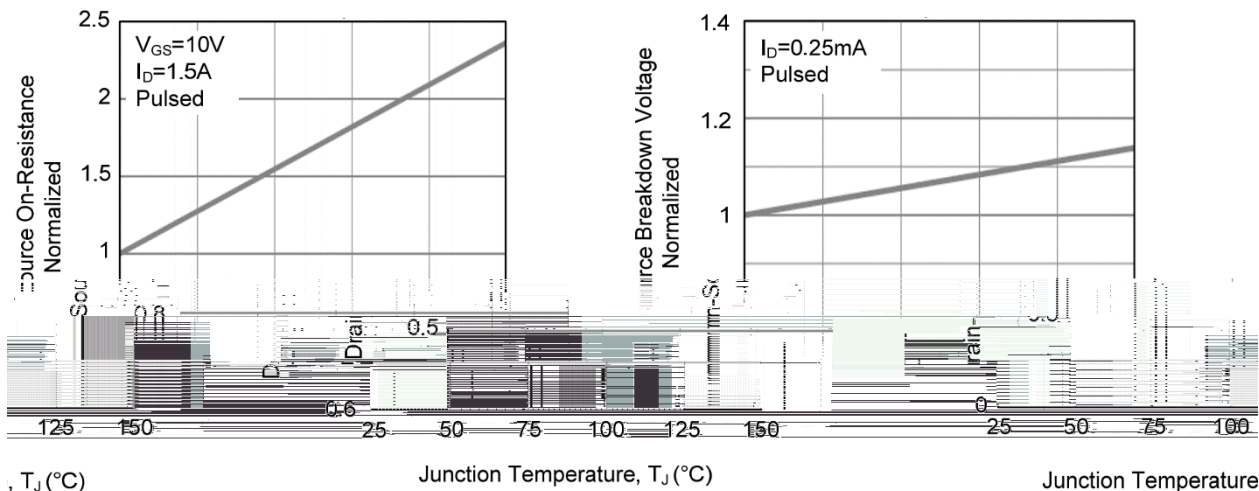
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0V$ $I_D=250\mu A$	500			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=500V$ $V_{GS}=0V$			1	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 30V$ $V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	2.0		4.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=1.5A$		2.8	3.5	Ω
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=3.0A$			1.4	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		220		pF
Output Capacitance	C_{oss}			130		
Reverse Transfer Capacitance	C_{rss}			5		
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		

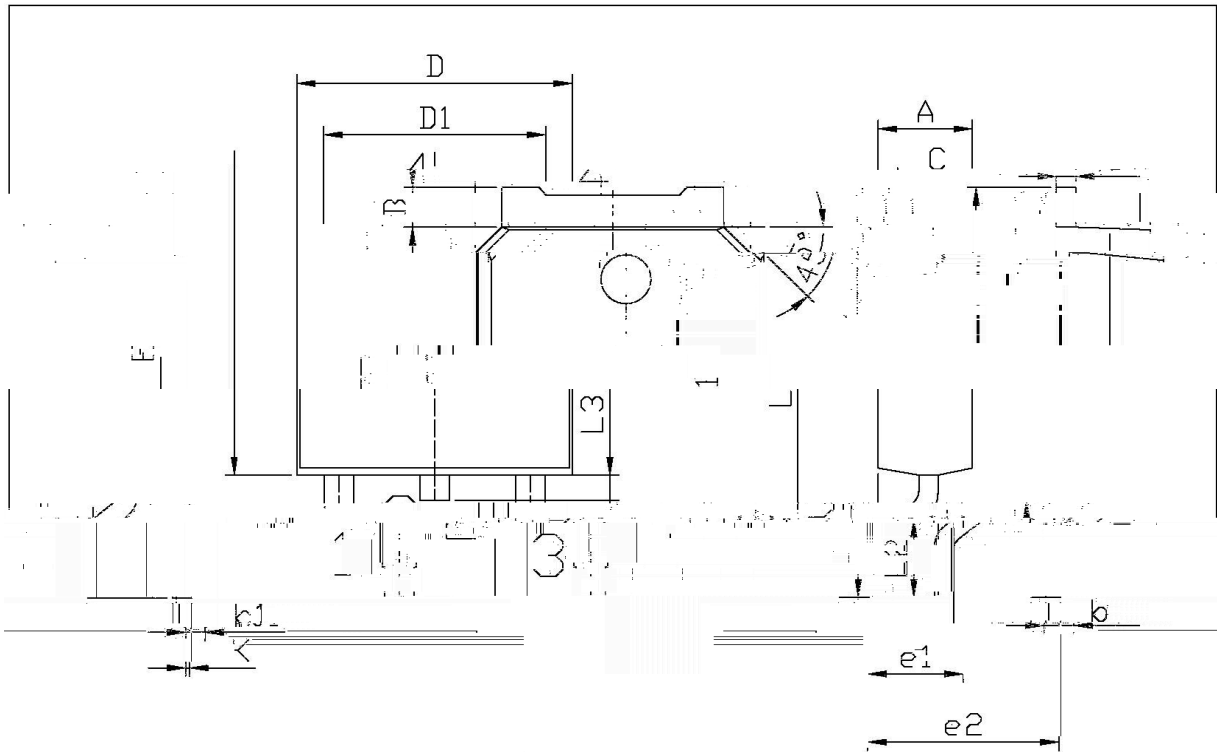
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=100V$ $I_D=3.0A$ $V_{GS}=10V$ $R_G=25\Omega$		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}	$V_{GS}=0V$ $I_S=3.0A$ $dI_F/dt=100 A/\mu s$		64		ns
Reverse Recovery Charge	Q_{rr}			0.8		μC

/ Electrical Characteristic Curve



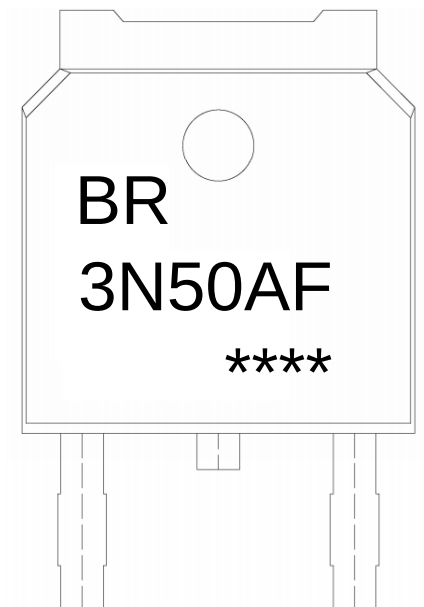
/ Package Dimensions



单位: mm

Symbol		Dimensions In Millimeters		Symbol		Dimensions In Millimeters	
		Min.	Max.			Min.	Max.
5.0	6.25	A	2.20	2.40	F	5.0	
2.24	2.34	B	0.95	1.25	e1	2.0	
4.0	4.73	b1	0.70	0.90	e2	2.0	
9.85	10.35	b1	0.45	0.55	E1		
0.60	0.90	1.2	1.70	2.00			
0.60	0.90	D	6.45	6.75	L		
0.50	0.60	0.10		0.10	0.10	0.10	

/ Marking Instructions



BR

3N50AF

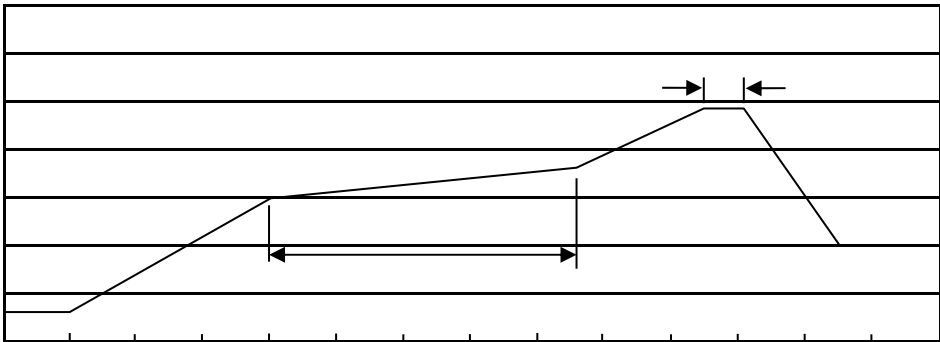
Note:

BR: Company Code

3N50AF: 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;

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.

/ 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
TO-252	2,500	2	5,000	6	30,000	13 ×16	360×360×50	380×335×366

/ TUBE

Package Type	Units					Dimension (unit mm ³)		
	Units/Tube /	Tubes/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Tube	Inner Box	Outer Box
TO-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	575×290×180

/ Notices