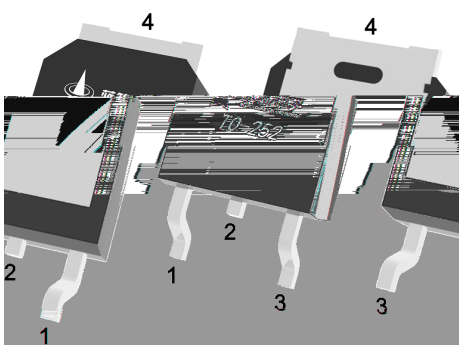
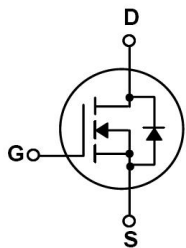


Rev.A Apr.-2024

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

$V_{DS}=500V$ $I_D=3A$
 $R_{DS(ON)}@10V \leq 3.5\Omega$ (Typ. 2.8Ω)
 Fast Switching.
 HF Product.

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



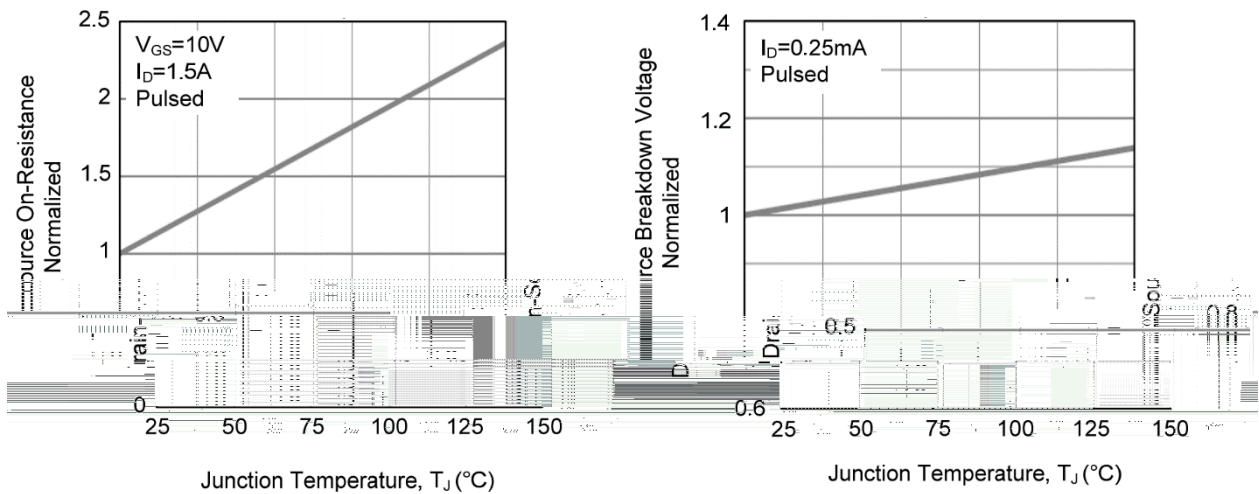
PIN1 G PIN 2 D PIN 3 S PIN 4 D

See Marking Instructions.

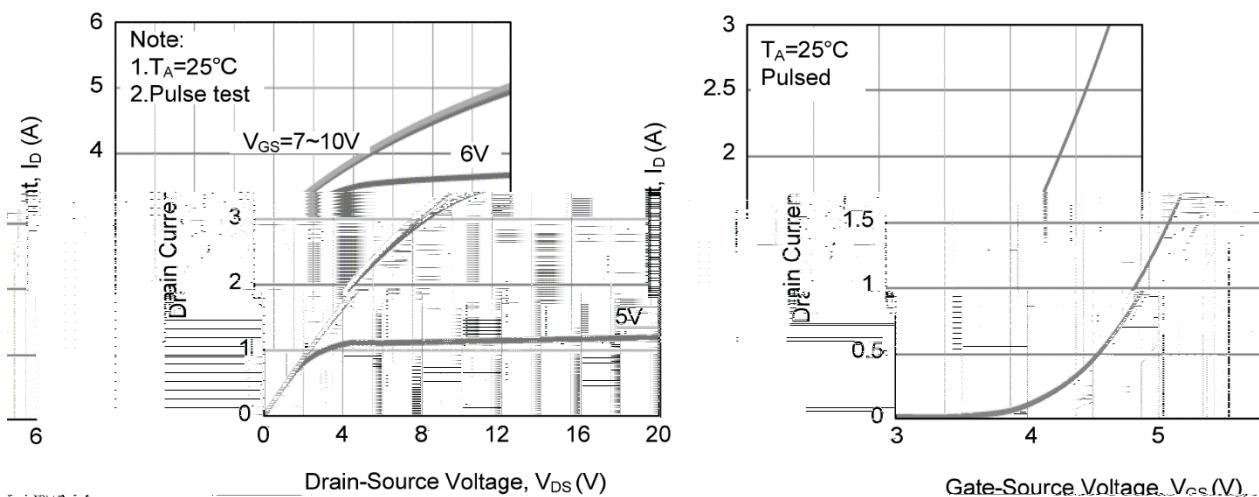
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	500	V
Drain Current	$I_D(T_c=25^\circ\text{C})$	3	A
Drain Current - Pulsed	I_{DM}	6	A
Gate-Source Voltage	V_{GS}	± 30	V
Single Pulsed Avalanche Energy	E_{AS}	90	mJ
Avalanche Current	I_{AS}	4.5	A
Power Dissipation	$P_D(T_c=25^\circ\text{C})$	45	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	
Junction to Ambient	$R_{\theta JA}$	100	/W
Junction to Case	$R_{\theta JC}$	2.78	/W

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		

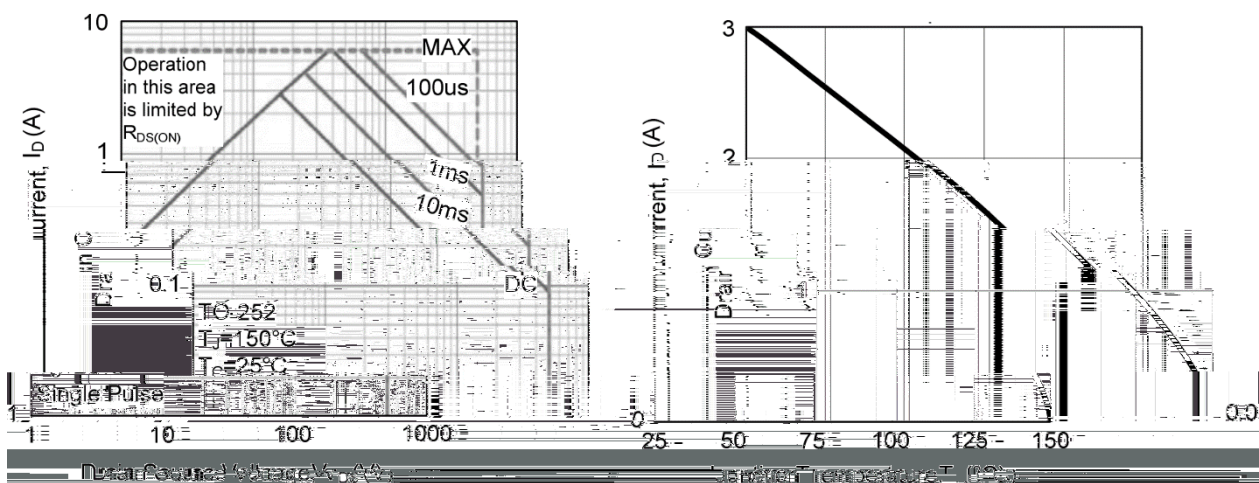
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=100V$ $I_D=3.0A$ $V_{GS}=10V$ $R_G=25\Omega$		5.2		ns
Turn-On Rise Time	t_r			20.3		
Turn-Off Delay Time	$t_{d(off)}$			45		
Turn-Off Fall Time	t_f			28		
Maximum Continuous Drain-Source Diode Forward Current	I_S				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



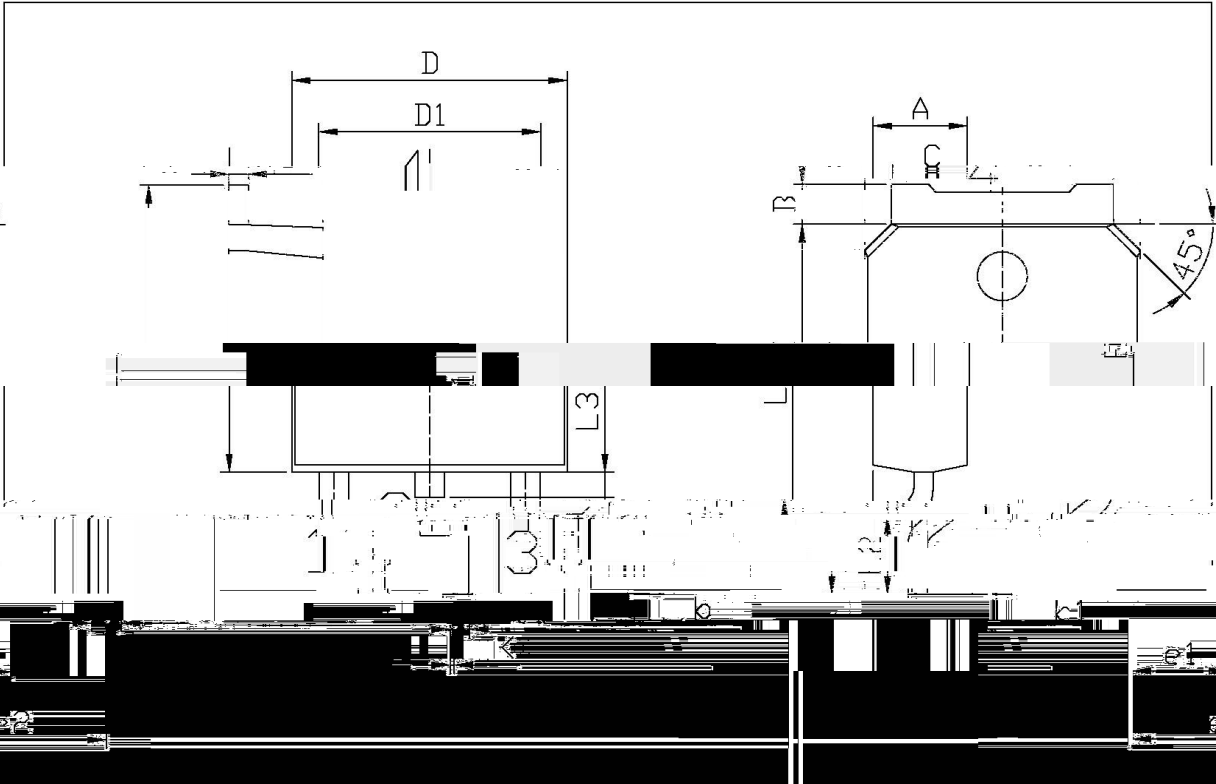
1. Drain Source On-Resistance vs. Junction Temperature



2. Drain Current vs. Drain-Source Voltage



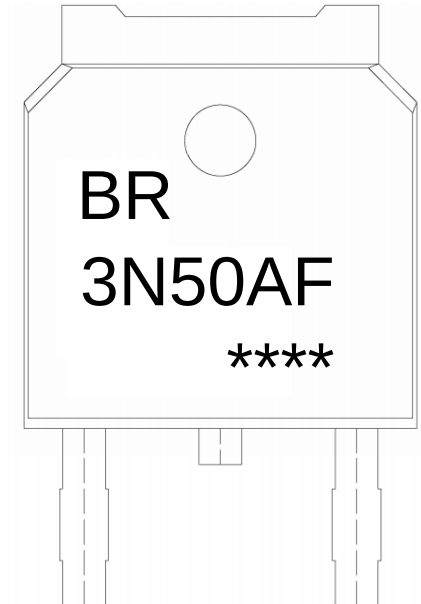
3. Safe Operating Area



单位：mm

Symbol		Dimensions In Millimeters		Symbol		Dimensions In Millimeters	
		Min	Max			Min	Max
6	25	0.20	0.25	A	0.20	2.40	5.0
0.95	1.25	0.95	2.24	B	2.34		
0.70	0.50	0.70	0.85	C	0.70		
0.45	0.55	0.45	0.85	L1	9.85	10.35	
0.60	0.90	0.60	0.55	J2	1.70	2.00	
5.50	0.60	5.50	0.90	D	6.45	6.75	
	0.60		0.60	D1	5.10		

T0-252



BR

3N50AF

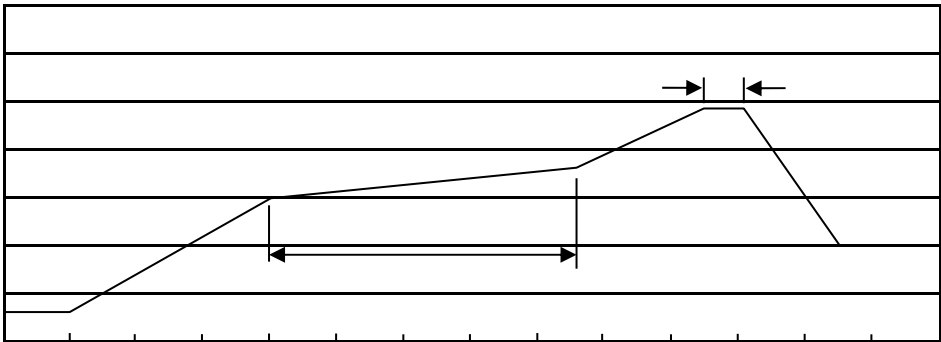
Note:

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.

260±5

10±1 sec.

Temp.:260±5℃

Time:10±1 sec

/ 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