/ Descriptions

N-Channel MOSFET in a TO-3P Plastic Package.

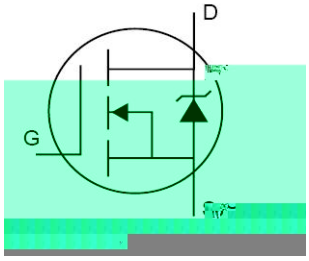
/ Features

Low gate charge, Fast switching capability, Avalanche energy specified, Improved dv/dt capability.

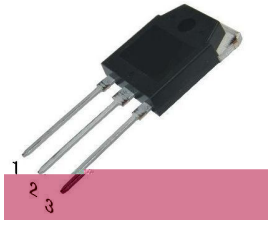
/ Applications

Designed for high voltage, high speed power switching applications such as high efficiency switched mode power supplies, active power factor correction.

/ Equivalent Circuit



/ Pinning



PIN1 Gate PIN 2 Drain PIN 3 Source

/ h_{FE} Classifications & Marking

See Marking Instructions.

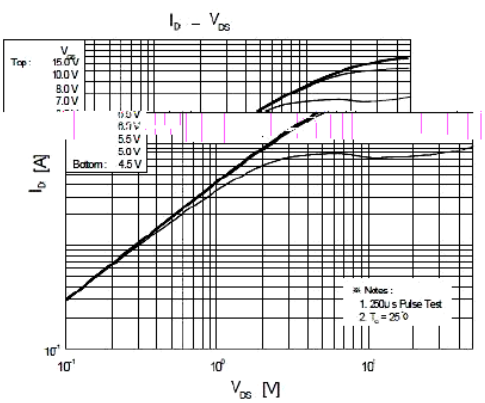
/ Absolute Maximum Ratings(Ta=25)

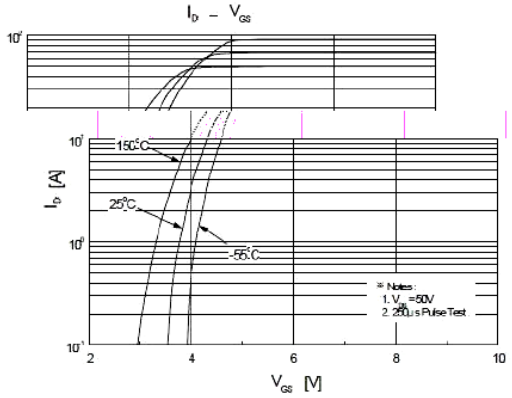
Parameter	Symbol	Rating	Unit
Drain-to-Source Breakdown Voltage	V_{DSS}	500	V
Continuous Drain Current	I_D(Tc=25℃)	20	A
Continuous Drain Current	I_D(Tc=100℃)	13	A
Drain Current Pulsed	I_{DP}	80	A
Gate-to-Source Voltage	V_{GSS}	±30	V
Repetitive Avalanche Energy	E_{AR}	28	mJ
Single Pulse Avalanche Energy	E_{AS}	1110	mJ
Peak Diode Recovery dv/dt	dv/dt	4.5	V/ns
Power Dissipation	P_D(Tc=25℃)	280	W
Junction Temperature Range	T_j	150	
Storage Temperature Range	T_{stg}	-55～150	
Thermal Resistance Junction-Ambient	R_{JA}	40	/W
Thermal Resistance Junction-Case	R_{JC}	0.44	/W

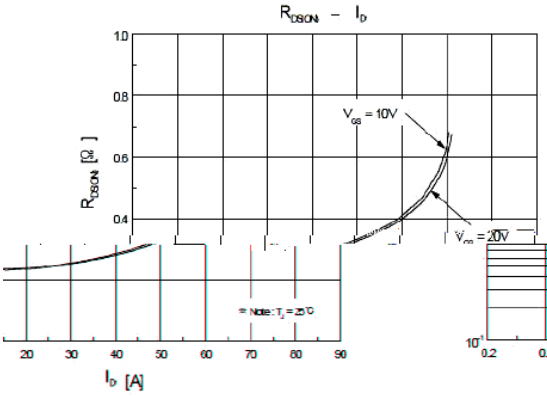
/ Electrical Characteristics(Ta=25)

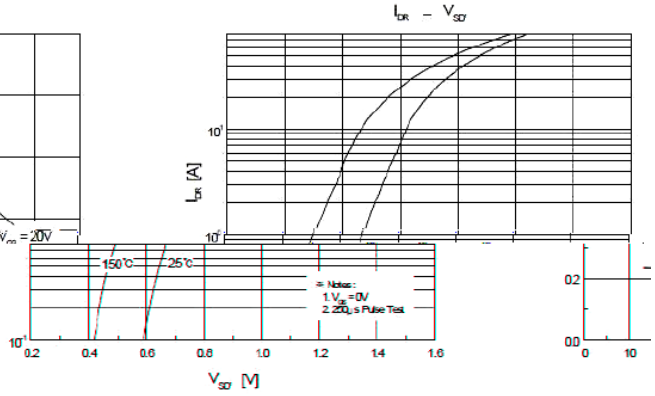
Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	V_{DSS}	V_{GS}=0V	I_D=250μA	500			V
Drain-to-Source Leakage Current	I_{DSS}	V_{DS}=500V	V_{GS}=0V			1.0	μA
		V_{DS}=400V	T_C=125			10	
Gate-to-Source Forward Leakage	I_{GSS}	V_{GS}=±30V	V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}	I_D=250μA	2.0		5.0	V
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V	I_D=10A		0.21	0.26	Ω
Diode Forward Voltage	V_{SD}	V_{GS}=0V	I_{SD}=20A			1.5	V
Input Capacitance	C_{iss}	V_{DS}=25V f=1.0MHz	V_{GS}=0V		2700		pF
Output Capacitance	C_{oss}				400		
Reverse Transfer Capacitance	C_{rss}				40		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=250V R_G=2.5Ω	I_D=20A		100		ns
Rise Time	t_r				400		
Turn-Off Delay Time	$t_{d(off)}$				100		
Fall Time	t_f				100		
Total Gate Charge	Q_g	V_{DS}=400V V_{GS}=10V	I_D=20A		70		nC
Gate-Source Charge	Q_{gs}				18		
Gate-Drain Charge	Q_{gd}				35		

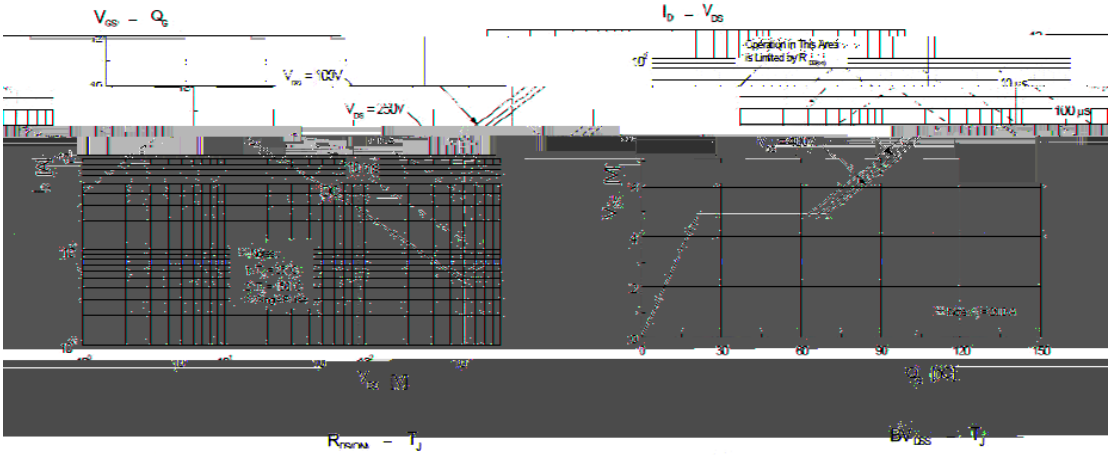
/ Electrical Characteristic Curve

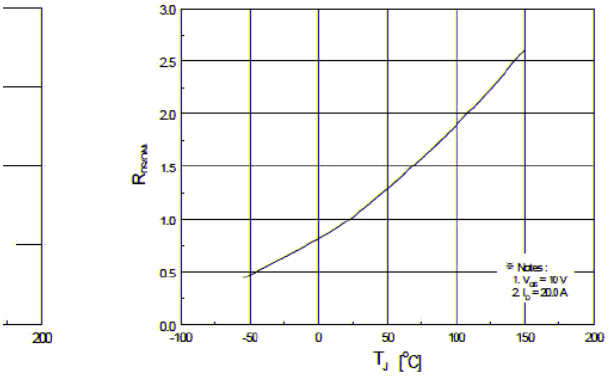


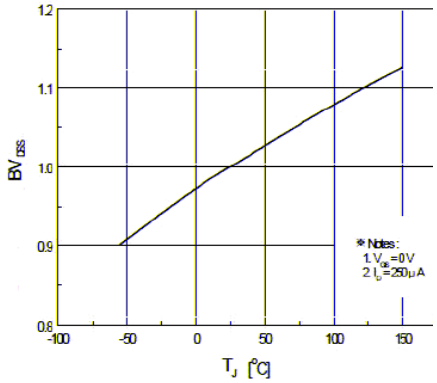




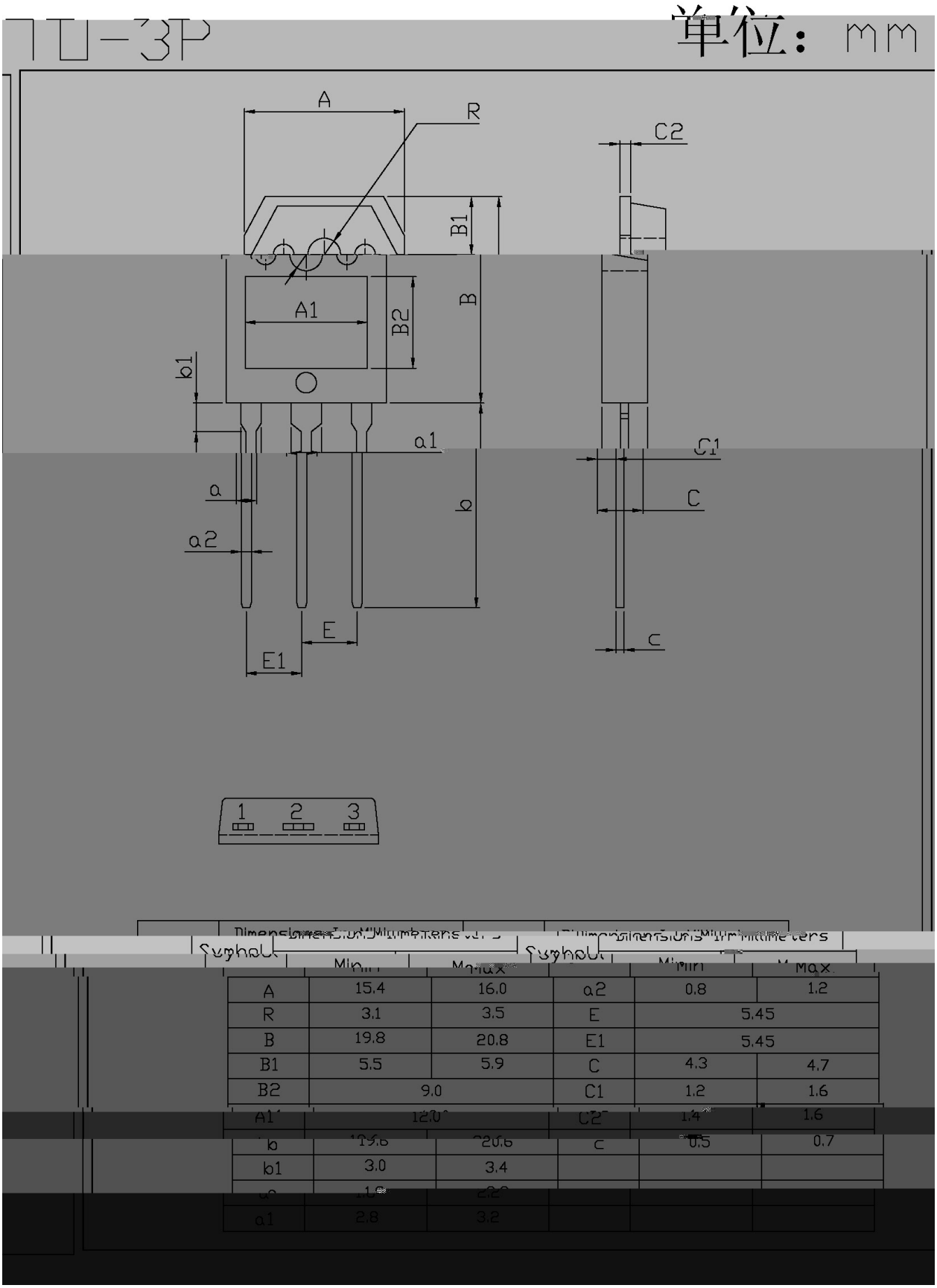






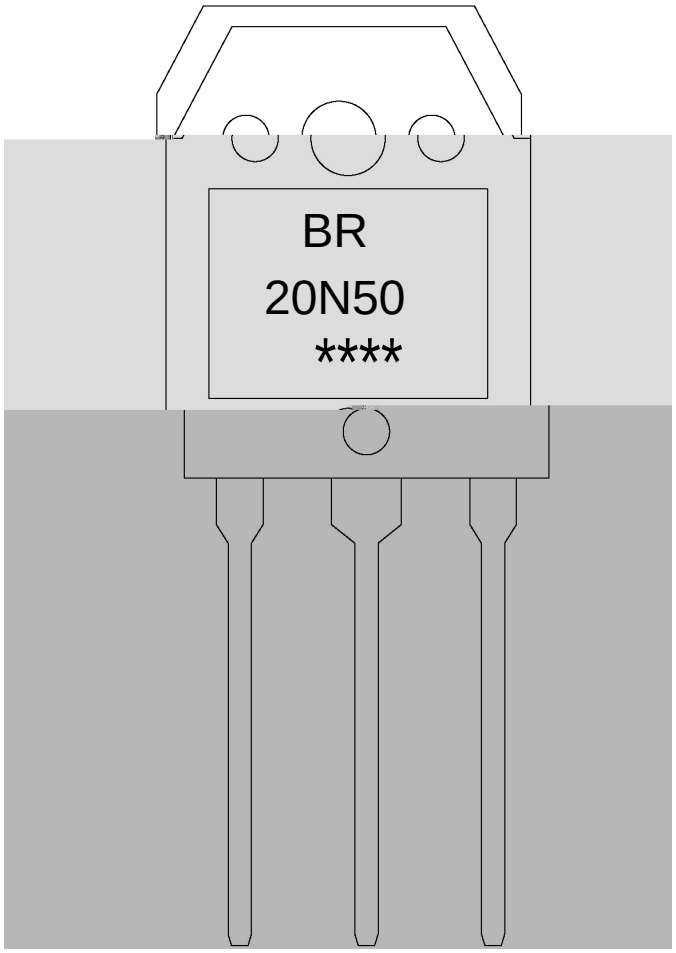


/ Package Dimensions



Symbol	Min	Max	Symbol	Min	Max
A	15.4	16.0	a2	0.8	1.2
R	3.1	3.5	E	5.45	
B	19.8	20.8	E1	5.45	
B1	5.5	5.9	C	4.3	4.7
B2	9.0		C1	1.2	1.6
A1	12.0		C2	1.4	1.6
b	19.6	20.6	c	0.5	0.7
b1	3.0	3.4			
a	1.6	2.0			
a1	2.8	3.2			

/ Marking Instructions



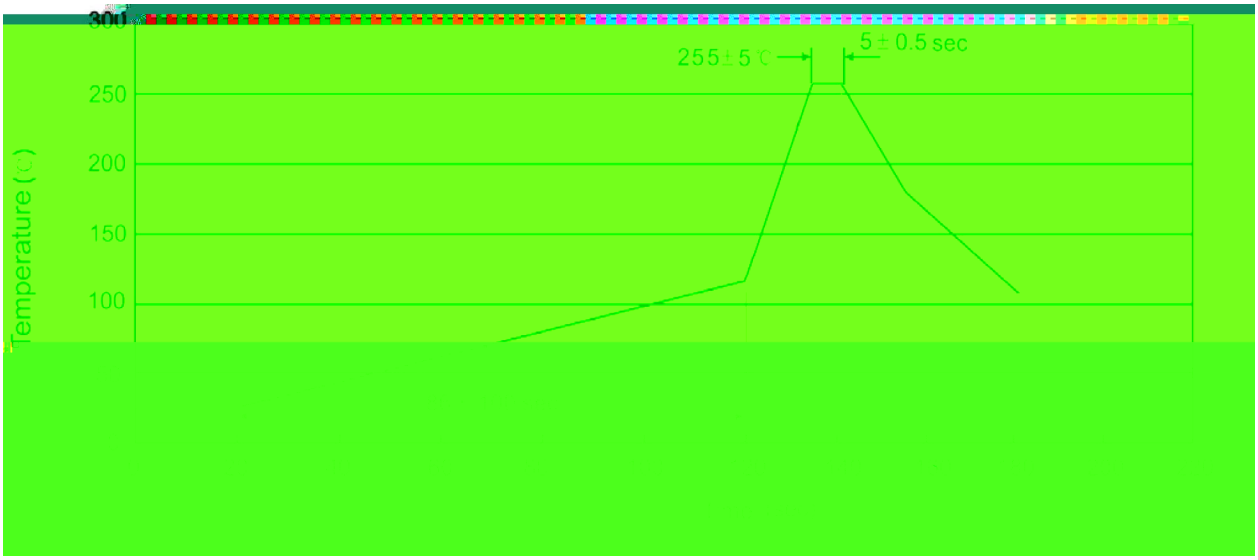
BR

20N50

Note:

BR:	Company Code.
20N50:	Product Type.
****:	Lot No. Code, code change with Lot No.

( ) / Temperature Profile for Dip Soldering(Pb-Free)



Note:

1 25 150 60 90sec;

1.Preheating:25~150 , Time:60~90sec.

2 255 5 5 0.5sec;

2.Peak Temp.:255 5 , Duration:5 0.5sec.

3 2 10 /sec.

3. Cooling Speed: 2~10 /sec.

/ Resistance to Soldering Heat Test Conditions

270 5 10 1 sec. Temp:270±5 Time:10±1 sec

/ Packaging SPEC.

/ TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm^3)		
	Units/Tube 只/套管	Tubes/Inner Box 套管/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Tube 套管	Inner Box 盒	Outer Box 箱
TO-3P	30	15	450	5	2250	497.5×46×8	555×164×50	575 290 180

/ Notices