

**描述 / Descriptions**

TO-3P 塑封封装 N 沟 MOS 场效应管。N-Channel MOSFET in a TO-3P Plastic Package.

**特征 / Features**

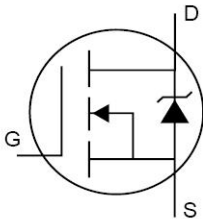
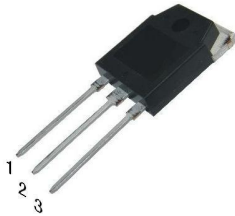
低栅极电荷，开关速度快，雪崩能量高，dv/dt 能力强。

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

**用途 / Applications**

用于高电压、高速功率开关应用，如高效率开关模电源、功率因数校正。

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

**内部等效电路 / Equivalent Circuit****引脚排列 / Pinning**

PIN1 : Gate

PIN 2 : Drain

PIN 3 : Source

**放大及印章代码 /  $h_{FE}$  Classifications & Marking**

见印章说明。 See Marking Instructions.

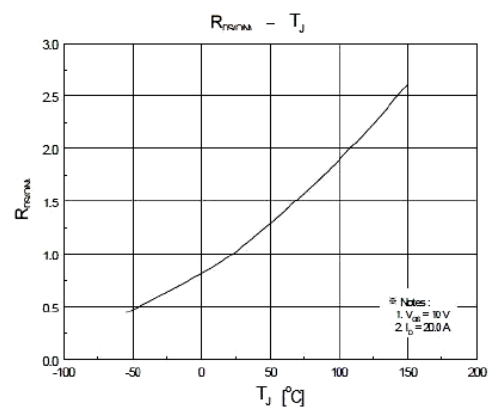
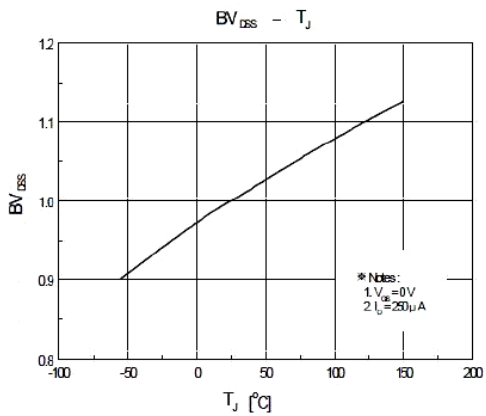
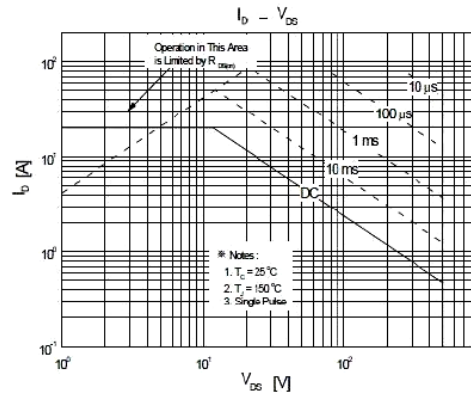
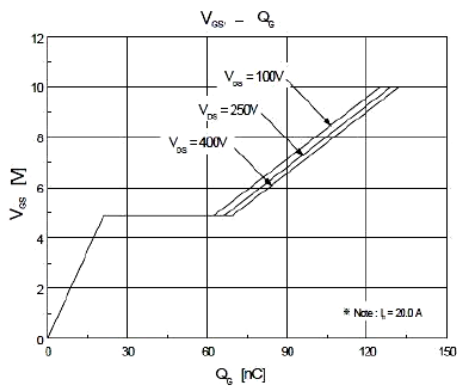
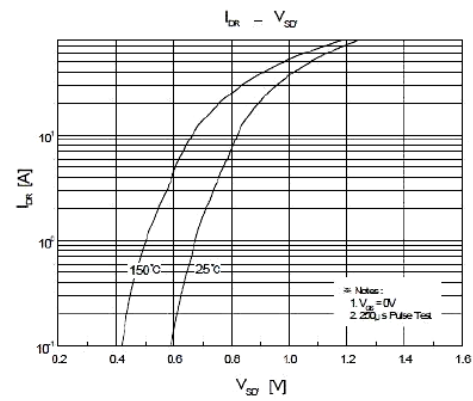
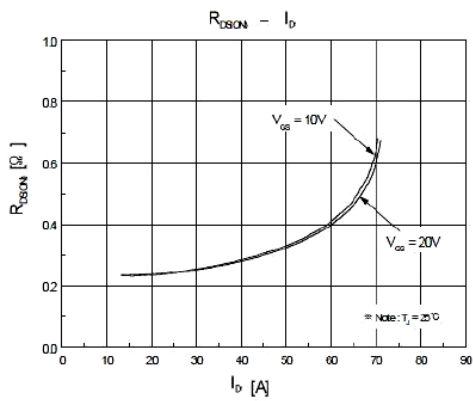
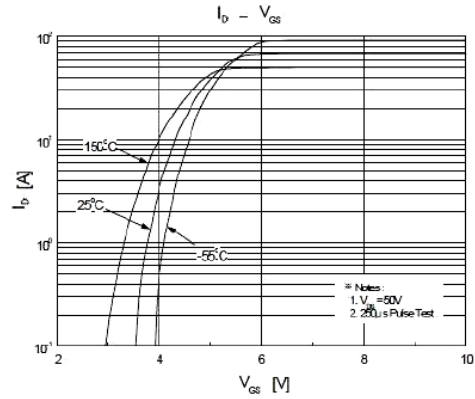
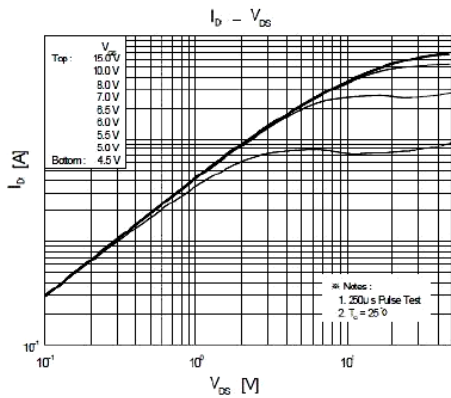
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain-to-Source Breakdown Voltage	$V_{DSS}$	500	V
Continuous Drain Current	$I_D(T_C=25^\circ\text{C})$	20	A
Continuous Drain Current	$I_D(T_C=100^\circ\text{C})$	13	A
Drain Current Pulsed	$I_{DP}$	80	A
Gate-to-Source Voltage	$V_{GSS}$	$\pm 30$	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	$P_D(T_C=25^\circ\text{C})$	280	W
Junction Temperature Range	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55~150	$^\circ\text{C}$
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	40	$^\circ\text{C}/\text{W}$
Thermal Resistance Junction-Case	$R_{\theta JC}$	0.44	$^\circ\text{C}/\text{W}$

**电性能参数 / Electrical Characteristics(Ta=25°C)**

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

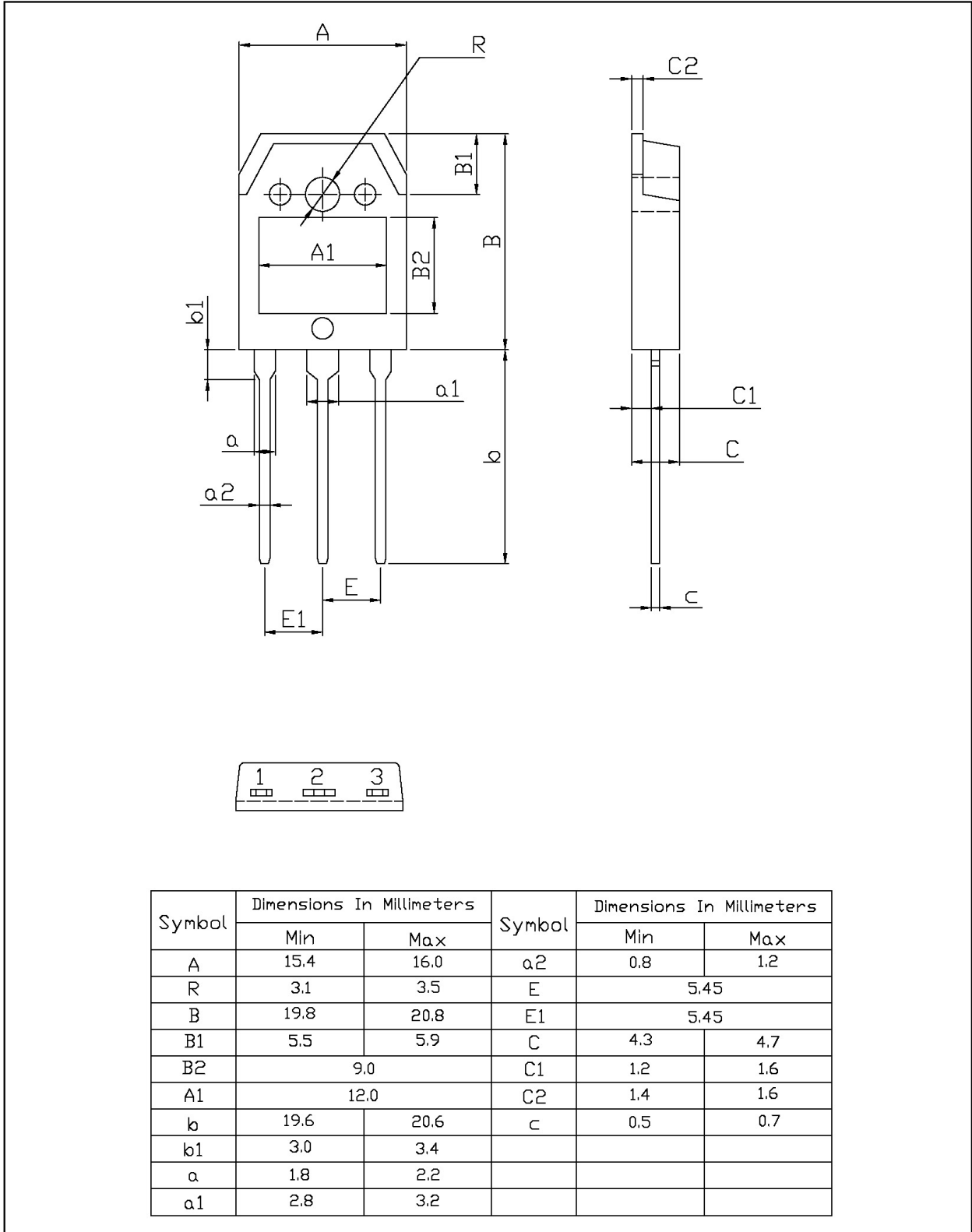
**电参数曲线图 / Electrical Characteristic Curve**



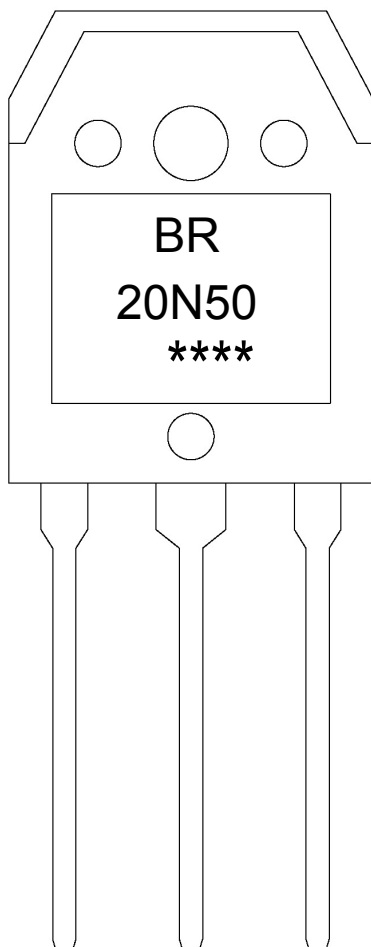
外形尺寸图 / Package Dimensions

TO-3P

单位: mm



印章说明 / Marking Instructions



说明：

BR: 为公司代码

20N50： 为型号代码

\*\*\*\*： 为生产批号代码，随生产批号变化。

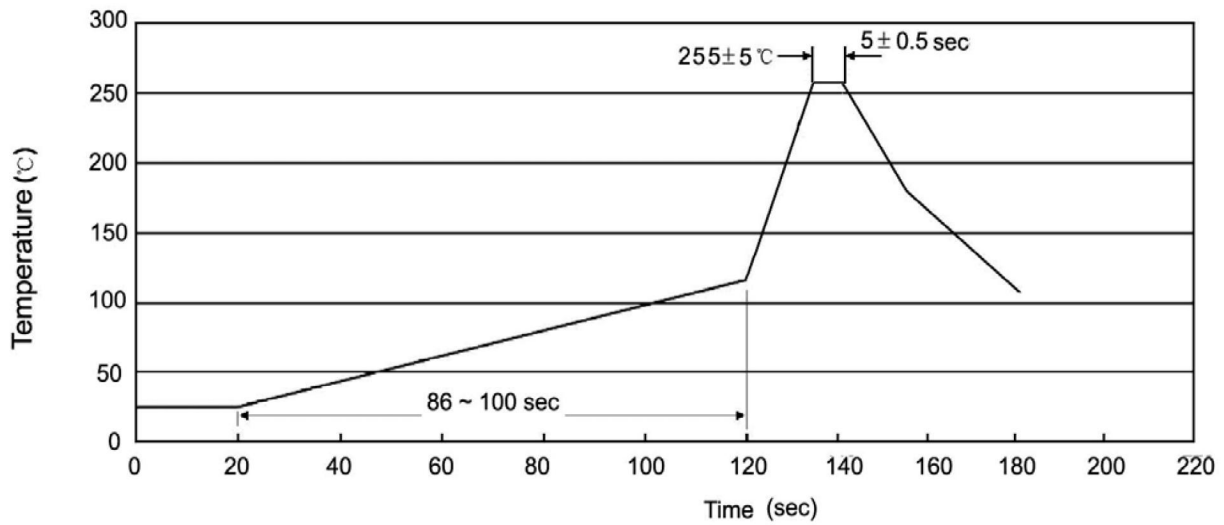
Note:

BR: Company Code.

20N50: Product Type.

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

**波峰焊温度曲线图(无铅) / Temperature Profile for Dip Soldering(Pb-Free)**



说明：

- 1、预热温度 25 ~ 150°C，时间 60 ~ 90sec;
- 2、峰值温度 255±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2 ~ 10°C/sec.

Note:

- 1.Preheating:25~150°C, Time:60~90sec.
- 2.Peak Temp.:255±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

**耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions**

温度：270±5°C

时间：10±1 sec.

Temp:270±5°C

Time:10±1 sec

**包装规格 / Packaging SPEC.**

套管包装 / TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	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

**使用说明 / Notices**

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