

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

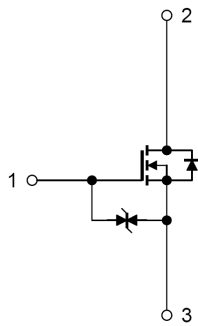
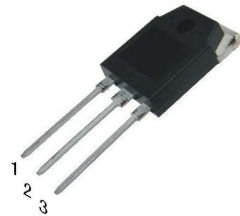
低导通电阻，高前向传输导纳，低漏电流。

Low drain-source ON resistance, High forward transfer admittance, Low leakage current.

用途 / Applications

用于高功率 DC/DC 转换和功率开关

These devices are well suited for high efficiency switching DC/DC converters.

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 Voltage	V_{DSS}	900	V
Drain-gate voltage ($R_{GS}=20k\Omega$)	V_{DGR}	900	V
Gate-to-Source Voltage	V_{GSS}	± 30	V
Drain Current(DC)Note1	I_D	9.0	A
Drain Current(Pulse) Note1	I_{DP}	36	A
Power Dissipation	$P_D(T_c=25^\circ C)$	150	W
Single Pulse Avalanche Energy Note2	E_{AS}	778	mJ
Repetitive Avalanche Energy Note3	E_{AR}	15	mJ
Avalanche Current	I_{AR}	9.0	A
ESD Voltage	$V_{ESD(G-S)}$	6000	V
Channel temperature	T_{ch}	150	$^\circ C$
Storage temperature range	T_{stg}	-55 to +150	$^\circ C$
Thermal resistance, channel to case	$R_{th(ch-c)}$	0.833	$^\circ C/W$
Thermal resistance, channel to ambient	$R_{th(ch-a)}$	50	$^\circ C/W$

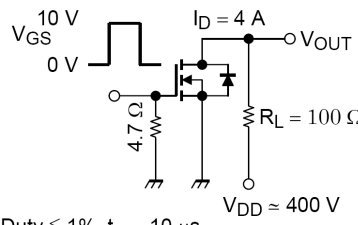
Notes:

Note 1: Ensure that the channel temperature does not exceed 150°C during use of the device.

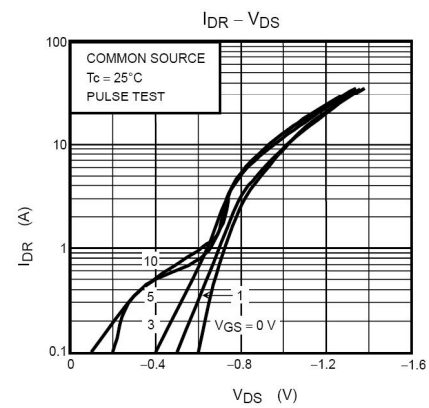
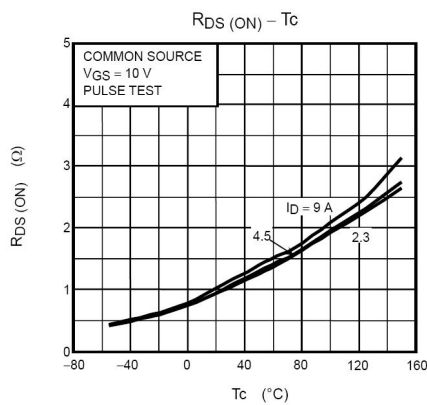
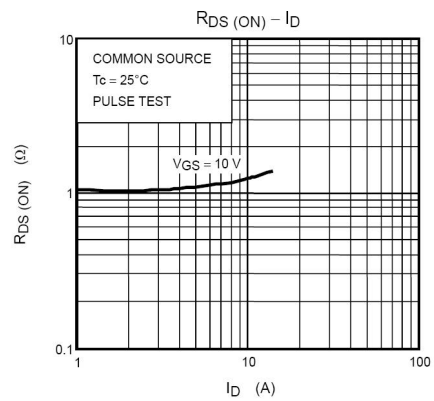
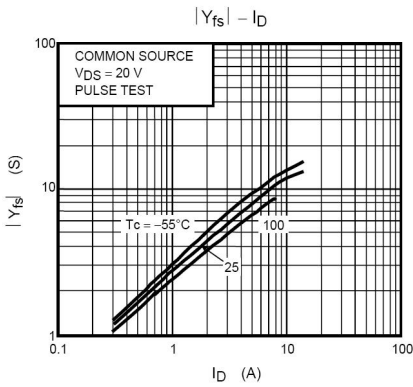
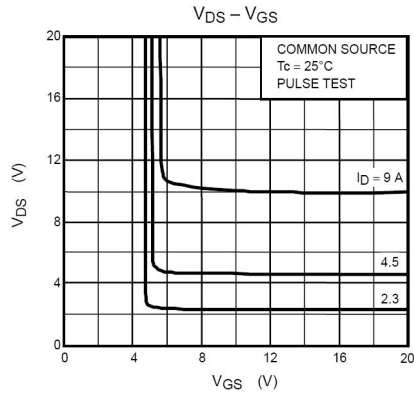
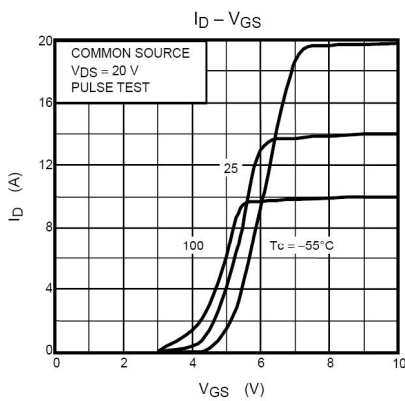
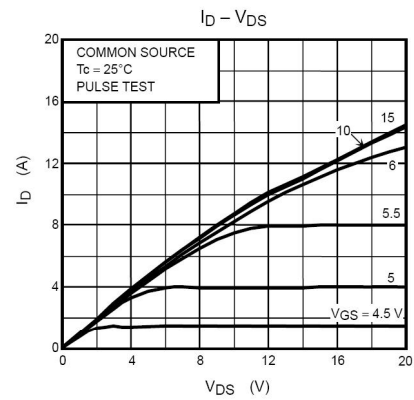
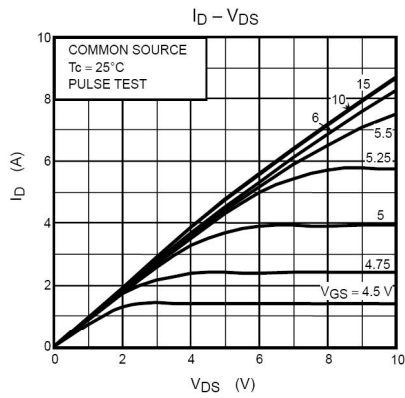
Note 2: $V_{DD}=90V$, $T_{ch}=25^\circ C$, $L=17.6mH$, $R_G=25\Omega$, $I_{AR}=9.0A$

Note 3: Repetitive rating: pulse width limited by max junction temperature This transistor is an electrostatic-sensitive device. Handle with care.

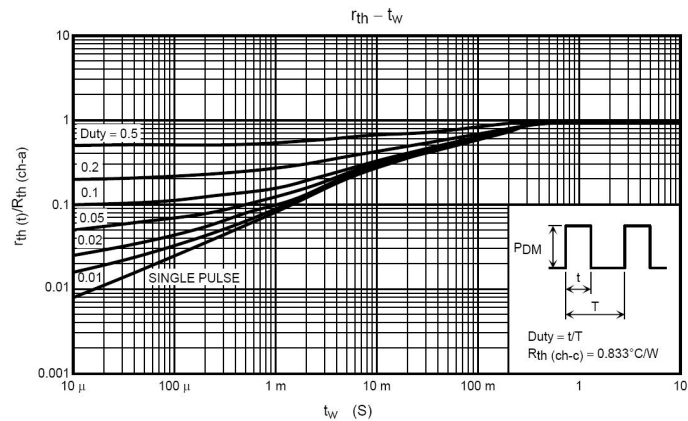
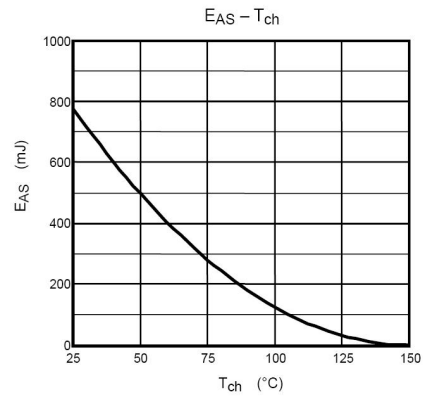
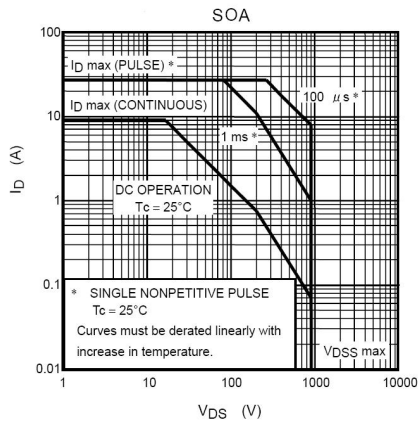
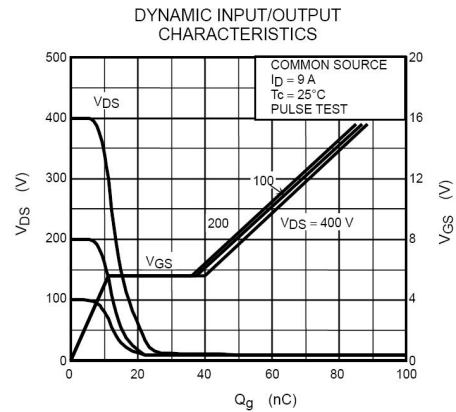
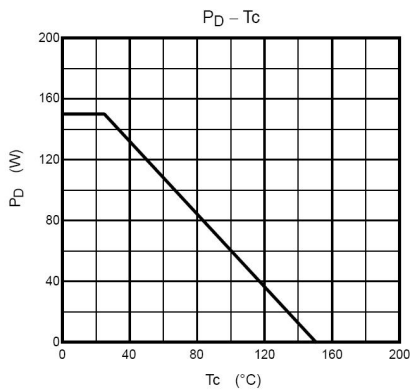
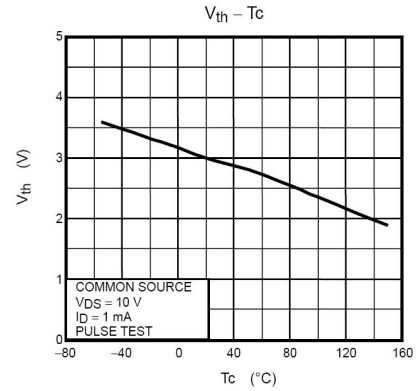
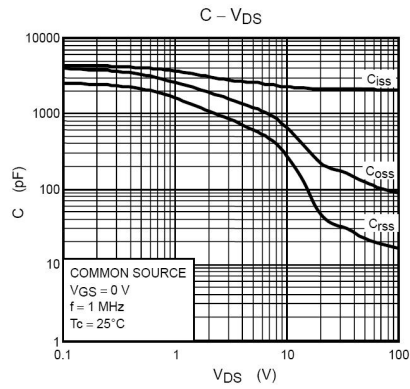
电性能参数 / Electrical Characteristics(Ta=25°C)

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
Gate-to-Source Forward Leakage	I_{GSS}	$V_{GS}=\pm 30V$ $V_{DS}=0V$			± 10	μA
Drain-to-Source Leakage Current	I_{DSS}	$V_{DS}=900V$ $V_{GS}=0V$			25	μA
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V$ $I_D=250\mu A$	900			V
Gate Threshold Voltage	$V_{(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	2.0		4.0	V
Static Drain-to-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=4.5A$		0.95	1.3	Ω
Forward Transconductance	g_{FS}	$V_{DS}=15V$ $I_D=4.0A$	3.5	7.0		S
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		2200		pF
Output Capacitance	C_{oss}	 Duty $\leq 1\%$, $t_w = 10\mu s$ $V_{DD} \approx 400V$		45		ns
Reverse Transfer Capacitance	C_{rss}			190		
Turn-On Delay Time	$t_{d(on)}$			25		
Rise Time	t_r			65		nC
Turn-Off Delay Time	$t_{d(off)}$	$V_{DD}=400V$ $V_{GS}=10V$ $I_D=9.0A$		20		
Fall Time	t_f			120		
Total gate charge (gate-source plus gate-drain)	Q_g			60		
Gate-source charge	Q_{gs}			34		A
Gate-drain ("Miller") charge	Q_{gd}			26		
Continuous drain reverse current Note1	I_{DR}			9.0		
Pulse drain reverse current Note1	I_{DRP}			27		A
Diode Forward Voltage	V_{DSF}	$V_{GS}=0V$ $I_S=9.0A$			1.5	V
Reverse recovery time	t_{rr}	$I_{DR}=9.0A$ $V_{GS}=0V$ $dI_{DR}/dt=100A/\mu s$		1.4		μs
Reverse recovery charge	Q_{rr}			16		μC

电参数曲线图 / Electrical Characteristic Curve



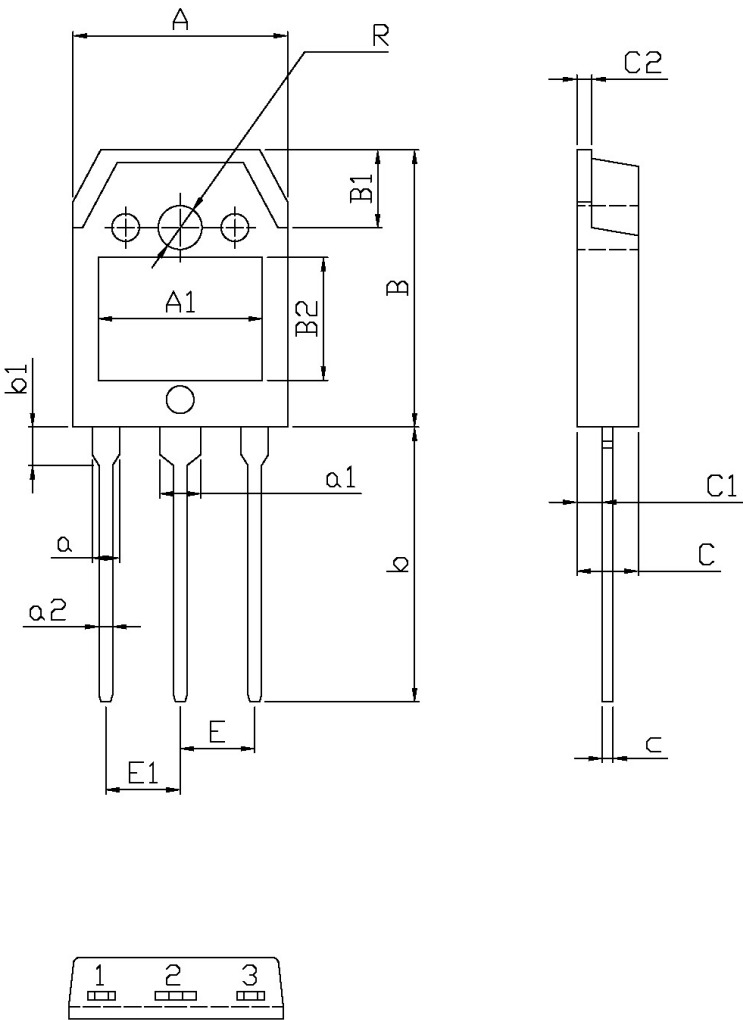
电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

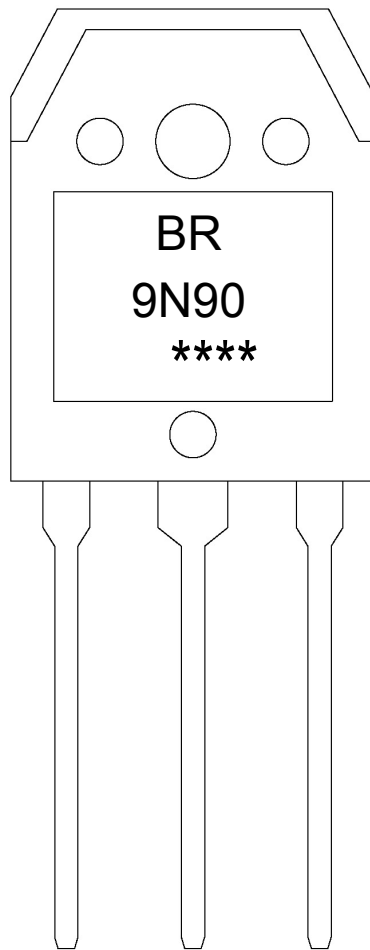
T□-3P

单位：mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		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	1.8	2.2			
a1	2.8	3.2			

印章说明 / Marking Instructions



说明：

BR: 为公司代码

9N90： 为型号代码

****： 为生产批号代码，随生产批号变化。

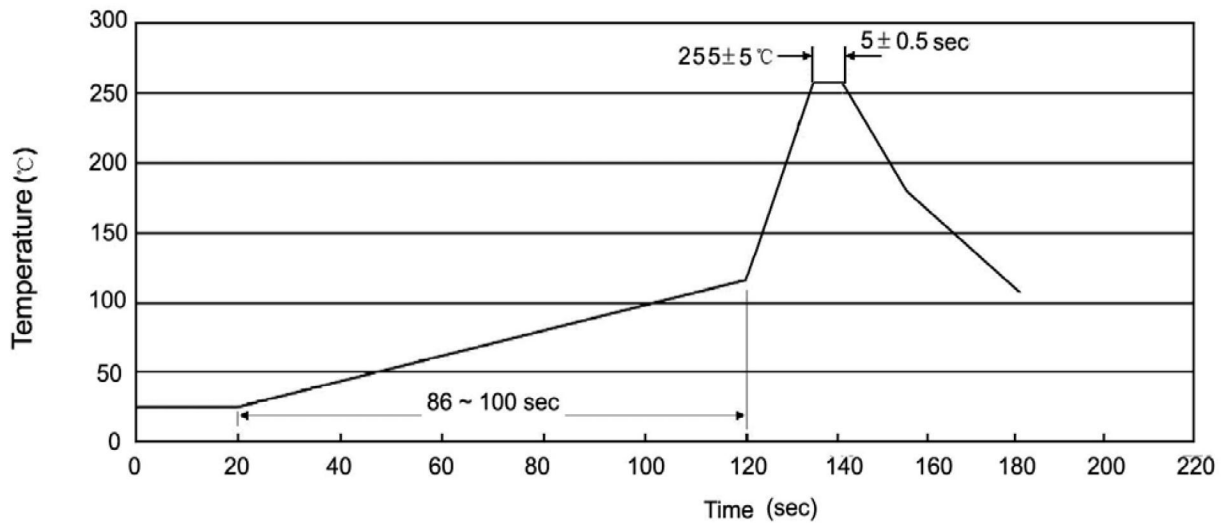
Note:

BR: Company Code.

9N90: 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 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

使用说明 / Notices