

TO-3P Plastic-Encapsulate Transistors

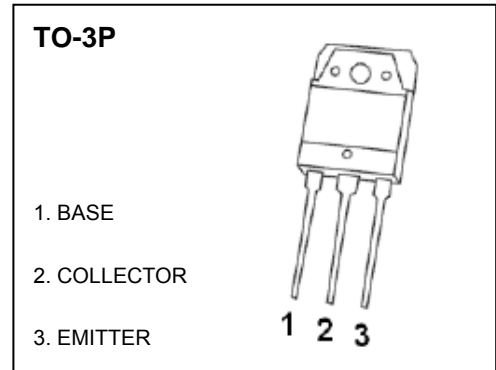
2SD1047 TRANSISTOR (NPN)

FEATURES

- Large current capacitance
- Complementary PNP Types:2SB817

APPLICATIONS

- High audio frequency output stage
- Power amplifier



MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	160	V
Collector-Emitter Voltage	V_{CEO}	140	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	12	A
Collector Power Dissipation	P_C	3	W
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	41.7	$^{\circ}\text{C/W}$
Junction Temperature	T_j	150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55~+150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$ unless otherwise specified)

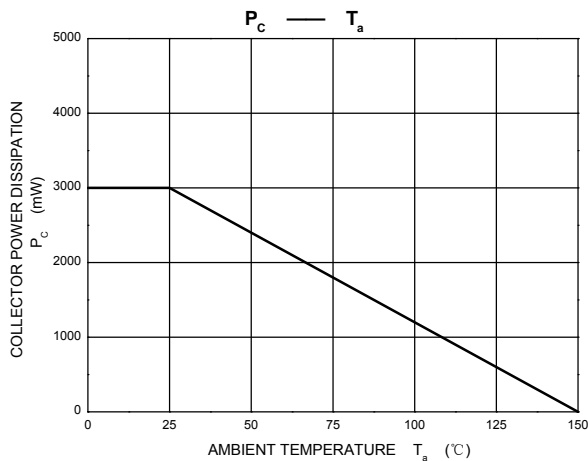
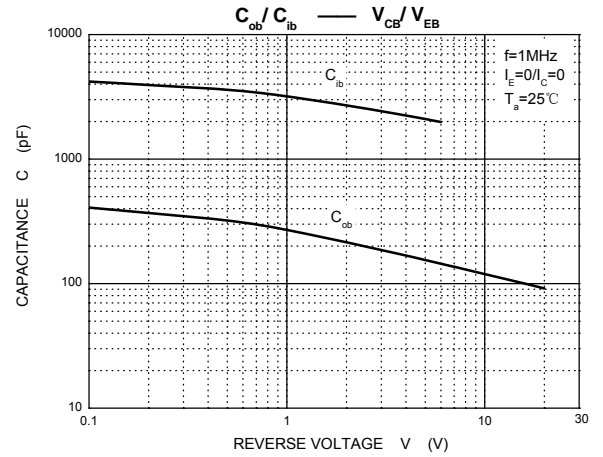
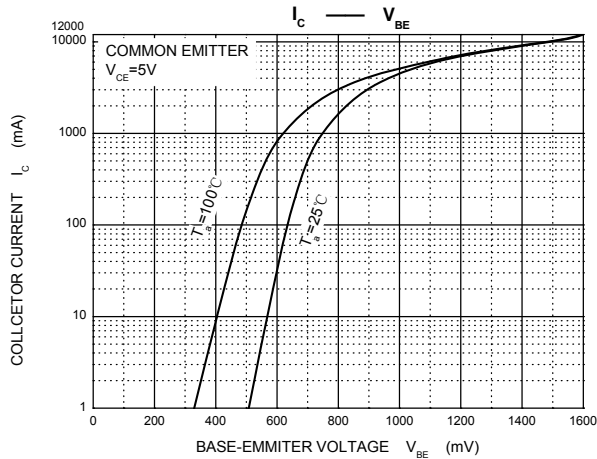
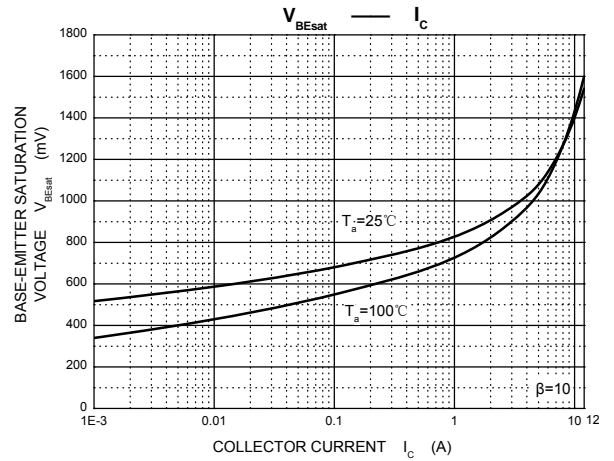
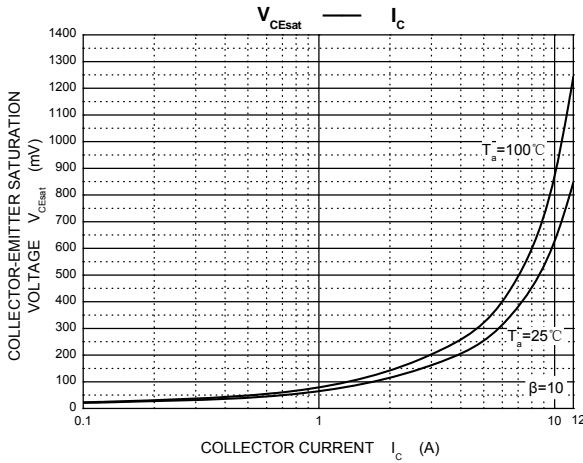
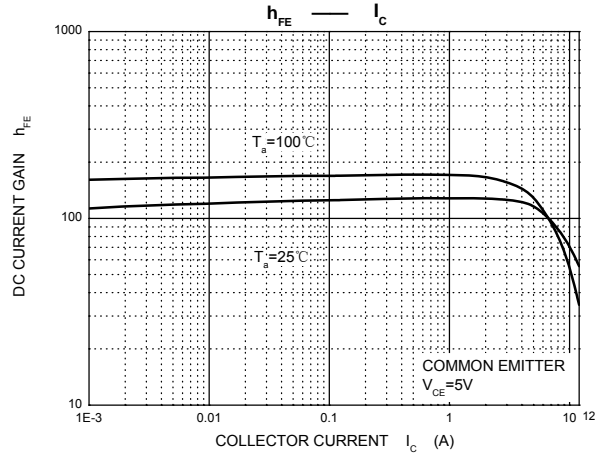
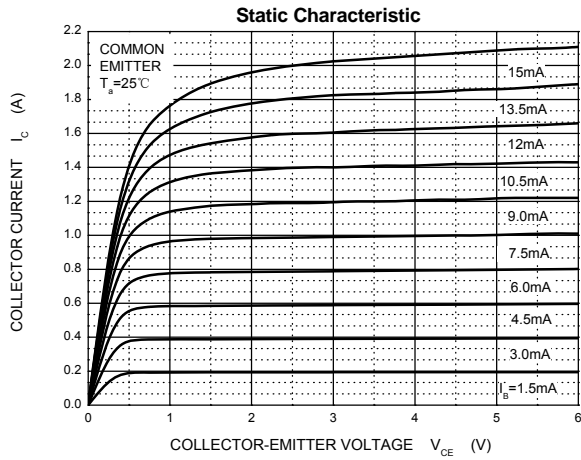
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=5\text{mA}, I_E=0$	160			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=50\text{mA}, I_B=0$	140			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=5\text{mA}, I_C=0$	6			V
Collector cut-off current	I_{CBO}	$V_{CB}=160\text{V}, I_E=0$			100	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=4\text{V}, I_C=0$			100	μA
DC current gain	$h_{FE(1)}^*$	$V_{CE}=5\text{V}, I_C=1\text{A}$	60		200	
	$h_{FE(2)}^*$	$V_{CE}=5\text{V}, I_C=6\text{A}$	20			
Collector-emitter saturation voltage	$V_{CE(sat)}^*$	$I_C=5\text{A}, I_B=0.5\text{A}$			2	V
Base-emitter voltage	V_{BE}	$V_{CE}=5\text{V}, I_C=1\text{A}$			1.5	V
Collector output capacitance	C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$		150		pF
Transition frequency	f_T^*	$V_{CE}=5\text{V}, I_C=1\text{A}$	10			MHz

Notes: Pulse Test : Pulse Width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

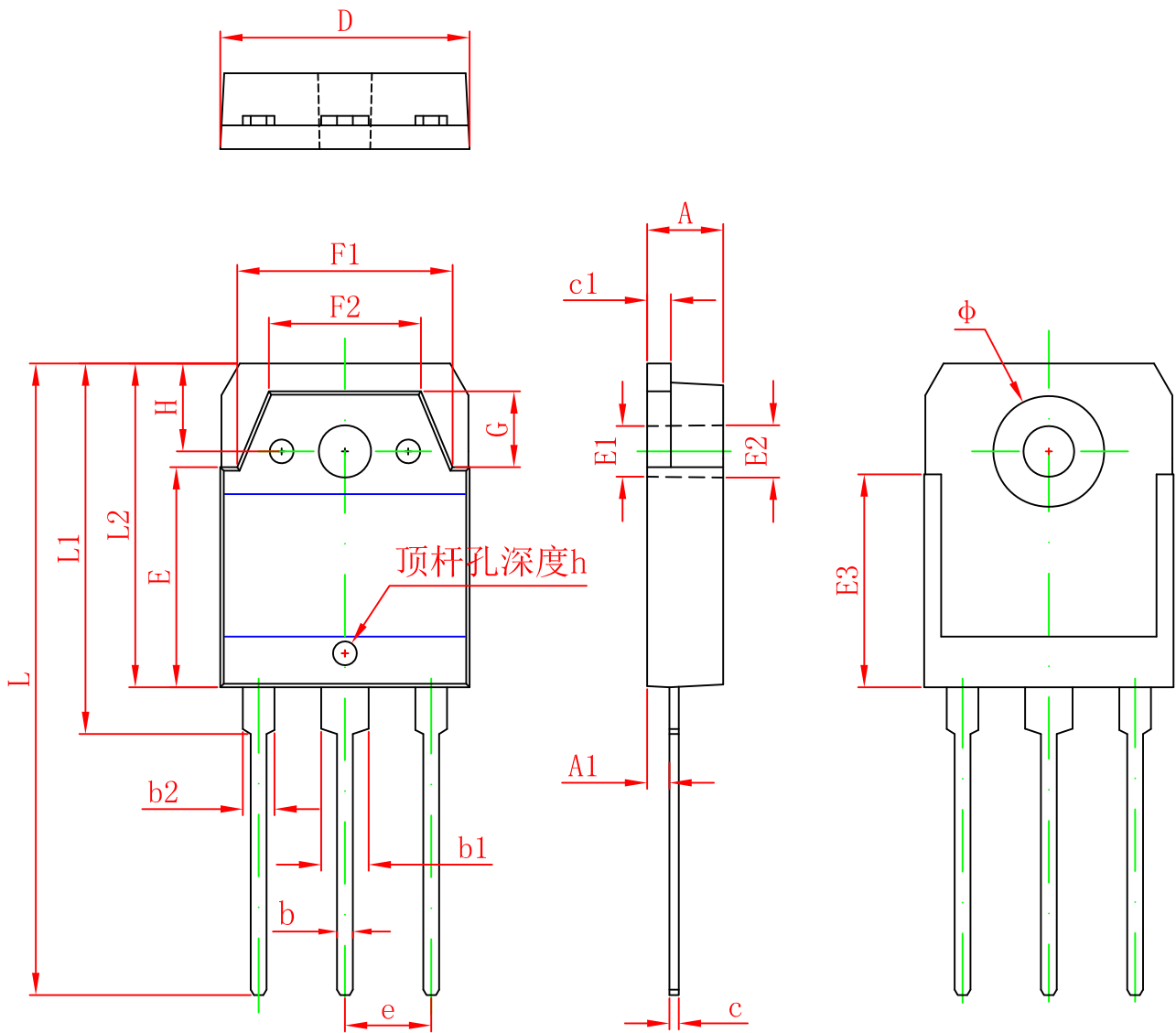
CLASSIFICATION OF h_{FE}

RANK	D	E
RANGE	60-120	100-200

Typical Characteristics



TO-3P Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.600	5.000	0.181	0.197
A1	1.200	1.600	0.047	0.063
b	0.800	1.200	0.031	0.047
b1	2.800	3.200	0.110	0.126
b2	1.800	2.200	0.071	0.087
c	0.500	0.700	0.020	0.028
c1	1.450	1.650	0.057	0.065
D	15.450	15.850	0.608	0.624
E	13.700	14.100	0.539	0.555
E1	3.200 REF		0.126 REF	
E2	3.300 REF		0.130 REF	
E3	13.450 REF		0.530 REF	
F1	13.400	13.800	0.528	0.543
F2	9.400	9.800	0.370	0.386
L	39.900	40.300	1.571	1.587
L1	23.200	23.600	0.913	0.929
L2	20.300	20.600	0.799	0.811
Φ	6.900	7.100	0.272	0.280
G	5.150	5.550	0.203	0.219
e	5.450 TYP		0.215 TYP	
H	5.000 REF		0.197 REF	
h	0.000	0.300	0.000	0.012