



TO-251-3L Plastic-Encapsulate Transistors

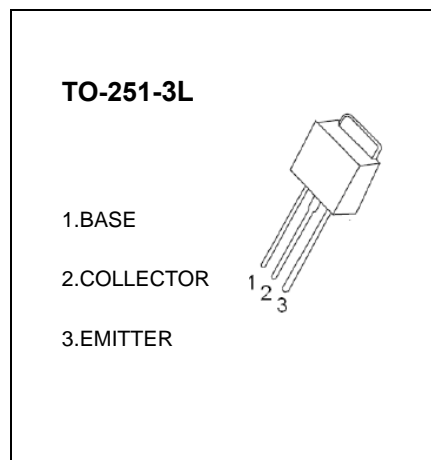
2SD1899-Z TRANSISTOR (NPN)

FEATURES

- High h_{FE}
- LOW $V_{CE(sat)}$

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

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	60	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current -Continuous	3	A
P_C	Collector Power Dissipation	1	W
T_J	Junction Temperature	150	$^{\circ}C$
T_{stg}	Storage Temperature	-55-150	$^{\circ}C$



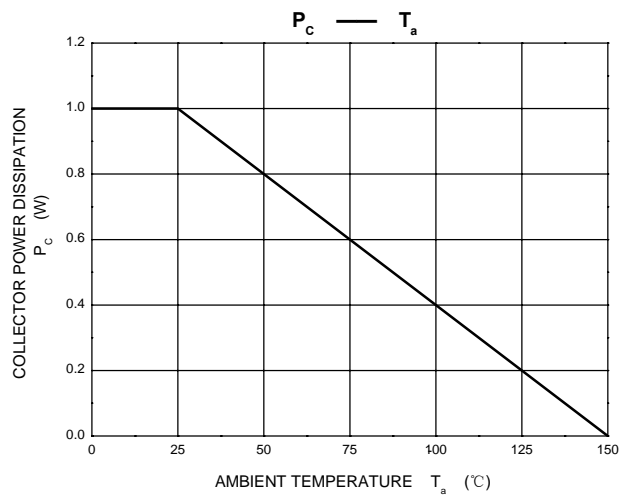
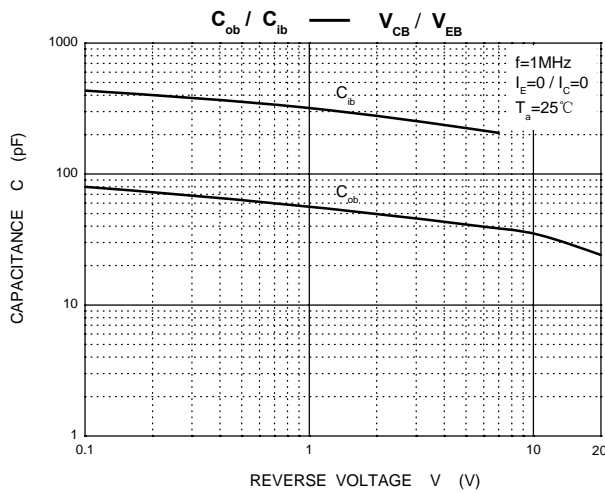
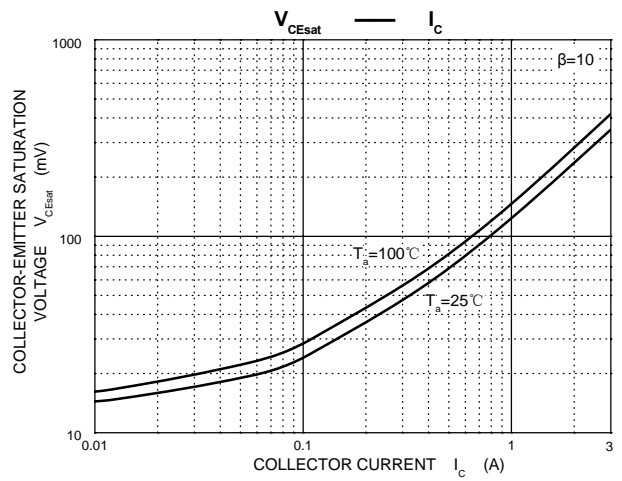
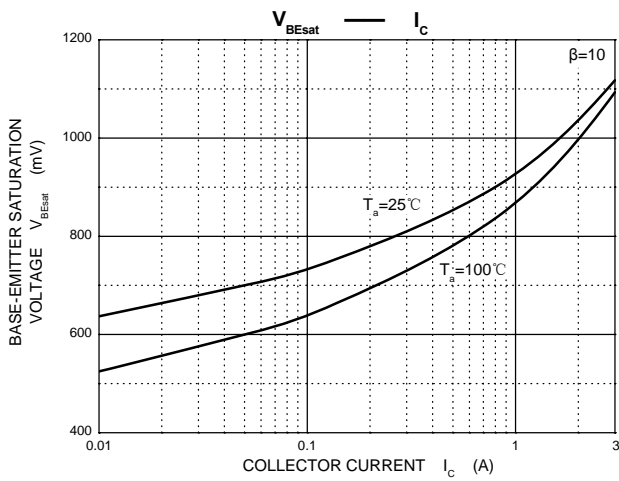
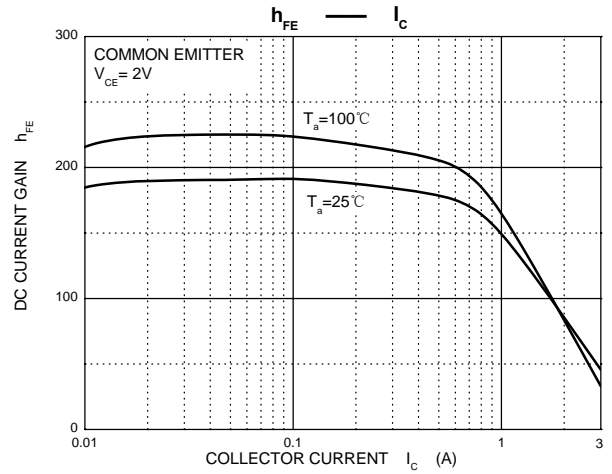
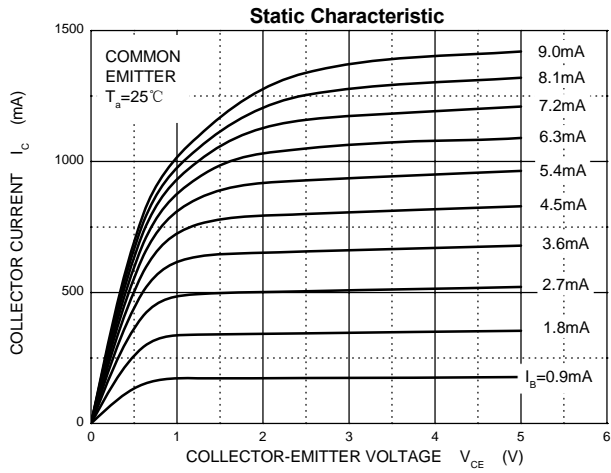
ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	60			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu A, I_C=0$	7			V
Collector cut-off current	I_{CBO}	$V_{CB}=60V, I_E=0$			10	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=7V, I_C=0$			10	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=2V, I_C=200mA$	60			
	$h_{FE(2)}$	$V_{CE}=2V, I_C=600mA$	100		400	
	$h_{FE(3)}$	$V_{CE}=2V, I_C=2A$	50			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=1.5A, I_B=150mA$			0.25	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=1.5A, I_B=150mA$			1.2	V
Transition frequency	f_T	$V_{CE}=5V, I_C=1.5A$		120		MHz
Collector output capacitance	C_{ob}	$V_{CB}=10V, I_E=0, f=1MHz$		30		pF
Switching Time	Turn on Time	t_{on}	$V_{CC}=10V, I_C=1A, I_{B1}=-I_{B2}=-0.1A$		0.5	μs
	Storage Time	t_{stg}			2.0	
	Fall Time	t_f			0.5	

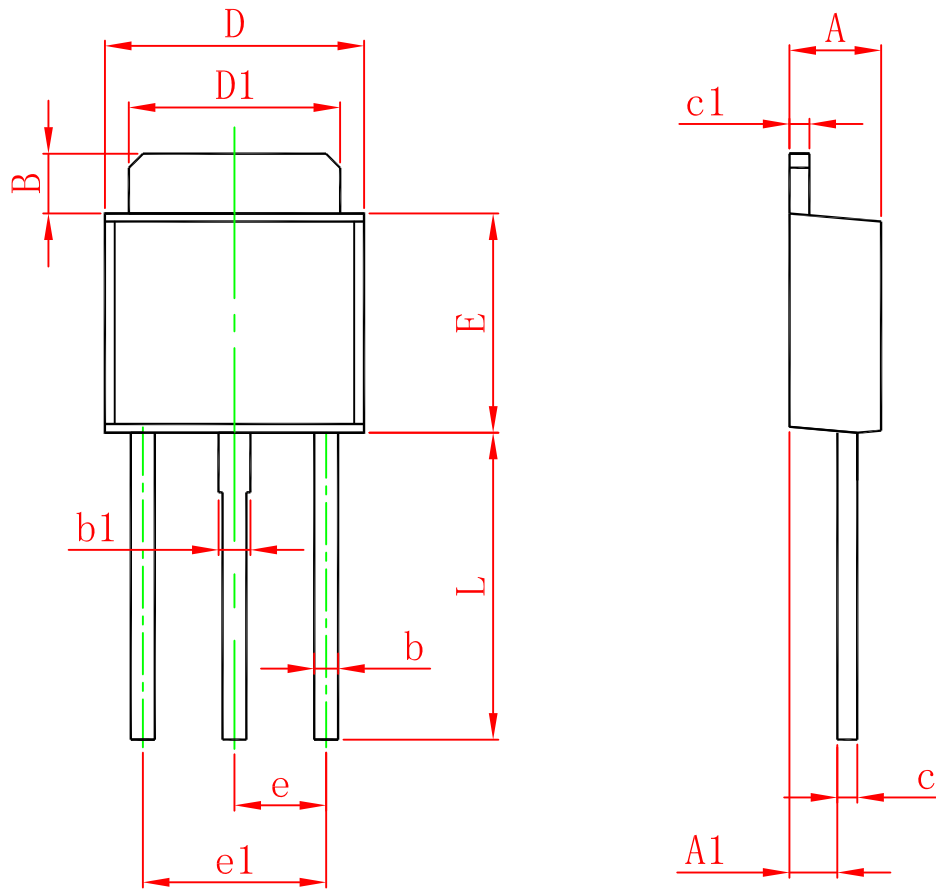
CLASSIFICATION OF $h_{FE(2)}$

Rank	M	L	K
Range	100-200	160-320	200-400

Typical Characteristics



TO-251-3L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	1.050	1.350	0.042	0.054
B	1.350	1.650	0.053	0.065
b	0.500	0.700	0.020	0.028
b1	0.700	0.900	0.028	0.035
c	0.430	0.580	0.017	0.023
c1	0.430	0.580	0.017	0.023
D	6.350	6.650	0.250	0.262
D1	5.200	5.400	0.205	0.213
E	5.400	5.700	0.213	0.224
e	2.300 TYP.		0.091 TYP.	
e1	4.500	4.700	0.177	0.185
L	7.500	7.900	0.295	0.311