

TO-252-2L Plastic-Encapsulate Transistors

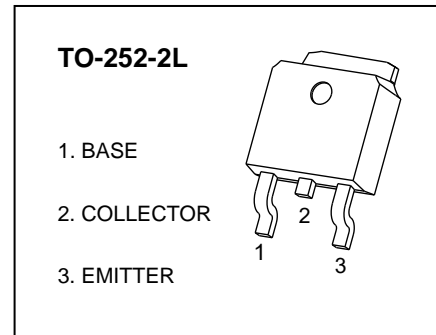
2SD1899 TRANSISTOR (NPN)

FEATURES

- LOW $V_{CE(sat)}$
- High Transition Frequency
- AEC-Q101 qualified (Automotive grade with suffix " Q".)

MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ 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	3	A
P_C	Collector Power Dissipation	1	W
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	125	$^\circ\text{C}/\text{W}$
T_J, T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	$^\circ\text{C}$



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

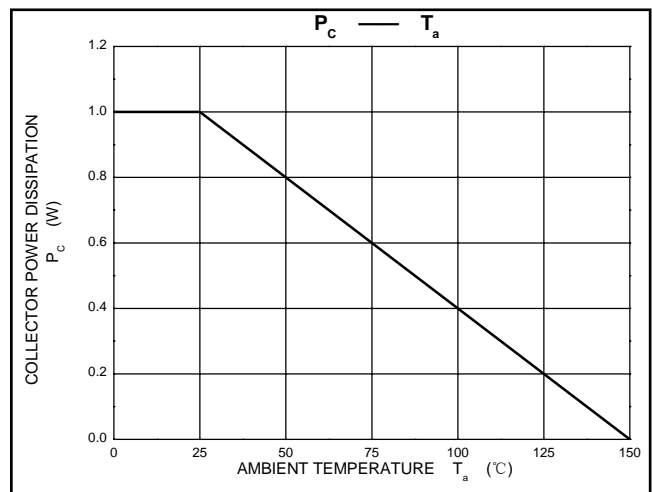
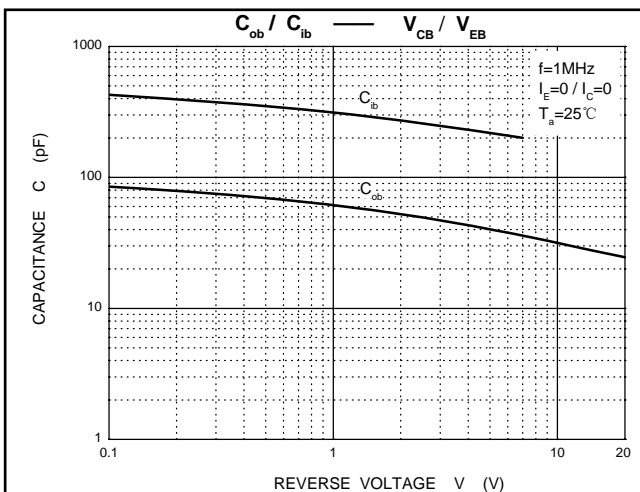
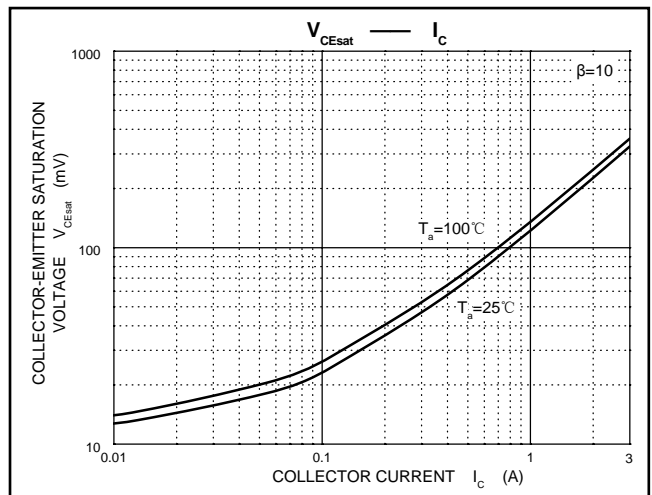
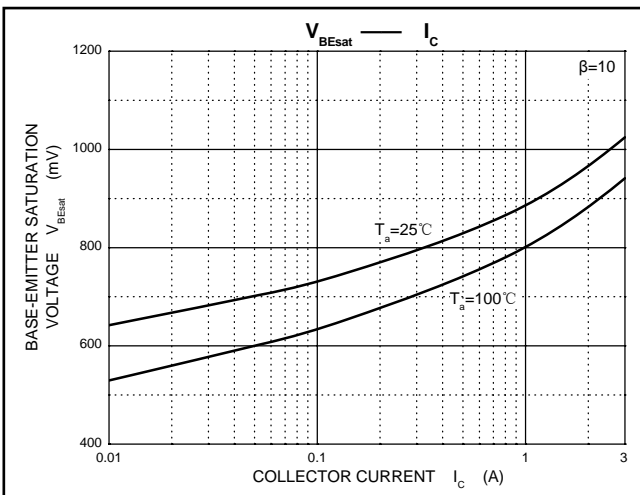
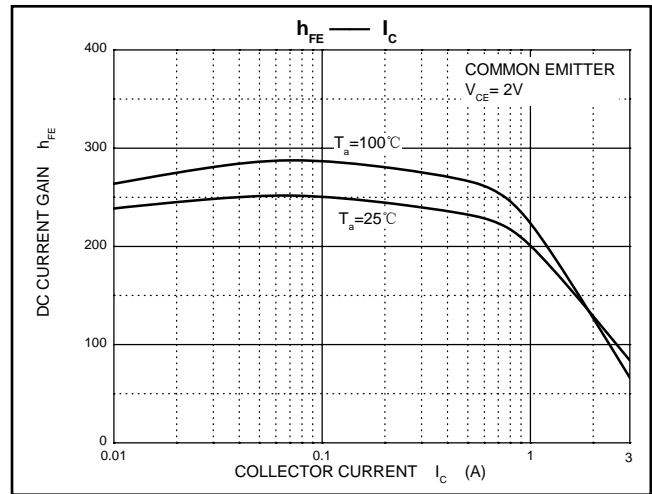
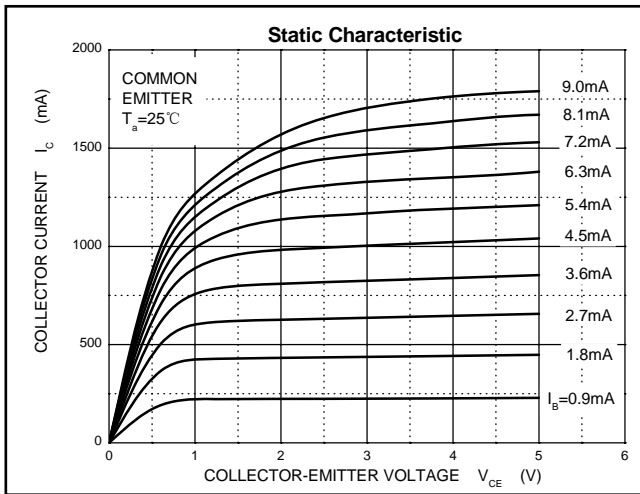
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	60			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}, I_C=0$	7			V
Collector cut-off current	I_{CBO}	$V_{CB}=60\text{V}, I_E=0$			10	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=7\text{V}, I_C=0$			10	μA
DC current gain	$h_{FE(1)}$ *	$V_{CE}=2\text{V}, I_C=0.2\text{A}$	60			
	$h_{FE(2)}$ *	$V_{CE}=2\text{V}, I_C=0.6\text{A}$	100		400	
	$h_{FE(3)}$ *	$V_{CE}=2\text{V}, I_C=2\text{A}$	50			
Collector-emitter saturation voltage	$V_{CE(sat)}$ *	$I_C=1.5\text{A}, I_B=0.15\text{A}$			0.25	V
Base-emitter saturation voltage	$V_{BE(sat)}$ *	$I_C=1.5\text{A}, I_B=0.15\text{A}$			1.2	V
Collector output capacitance	C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$		30		pF
Transition frequency	f_T	$V_{CE}=5\text{V}, I_C=1.5\text{A}$		120		MHz

*Pulse test: pulse width $\leq 350\mu\text{s}$, duty cycle $\leq 2.0\%$.

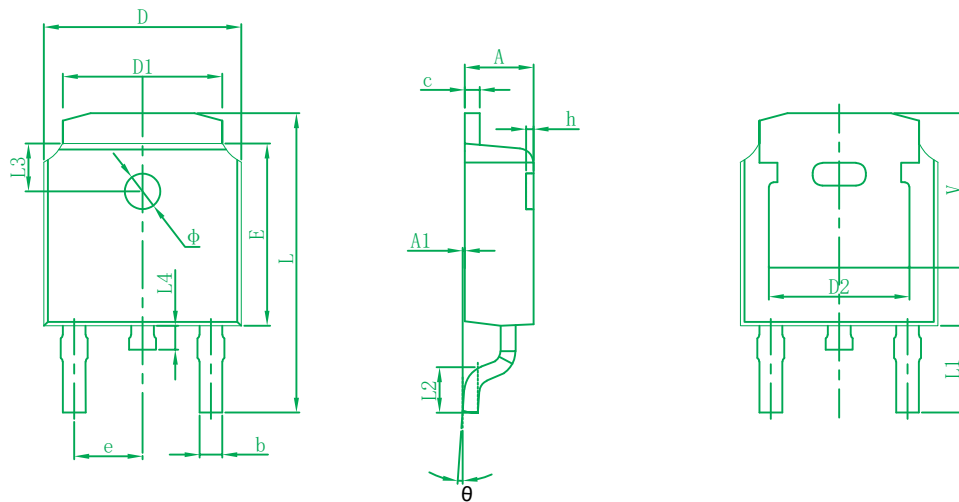
CLASSIFICATION OF $h_{FE(2)}$

RANK	M	L	K
RANGE	100-200	160-320	200-400

Typical Characteristics

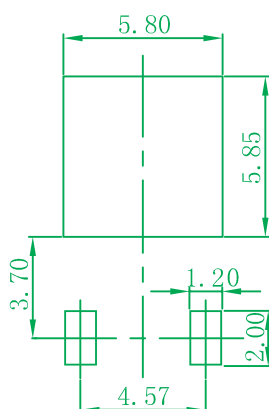


TO-252-2L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.635	0.770	0.025	0.030
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.712	10.312	0.382	0.406
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.250 REF.		0.207 REF.	

TO-252-2L Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.