



JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

TO-251/TO-252-2L Plastic-Encapsulate Transistors

2SD1899-Z TRANSISTOR (NPN)

FEATURES

- High h_{FE} $h_{FE}=100$ to 400
- Low $V_{CE(sat)}$ $V_{CE(sat)}=0.25V$

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

Symbol	Parameter	Value	Units
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	$^{\circ}C$

TO-251
TO-252-2L



1.BASE

2.COLLECTOR

3.EMITTER



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

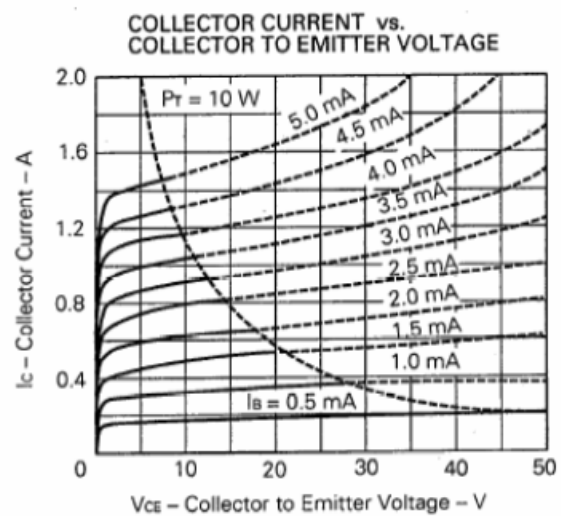
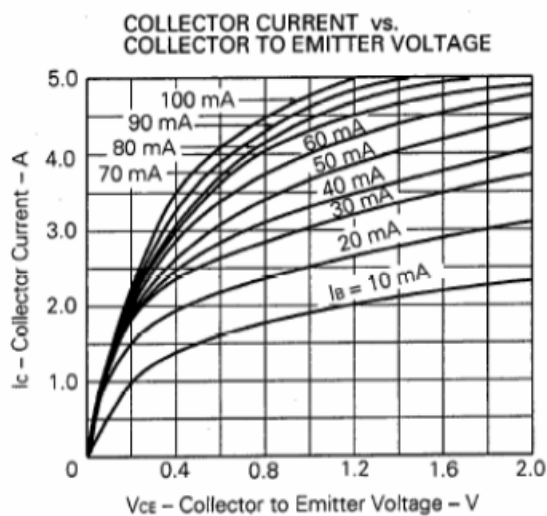
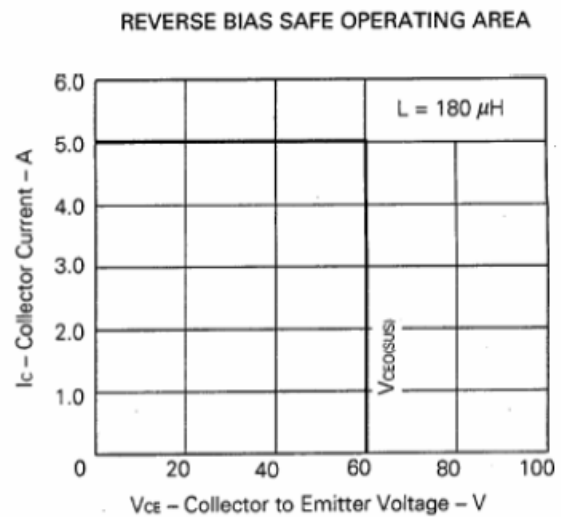
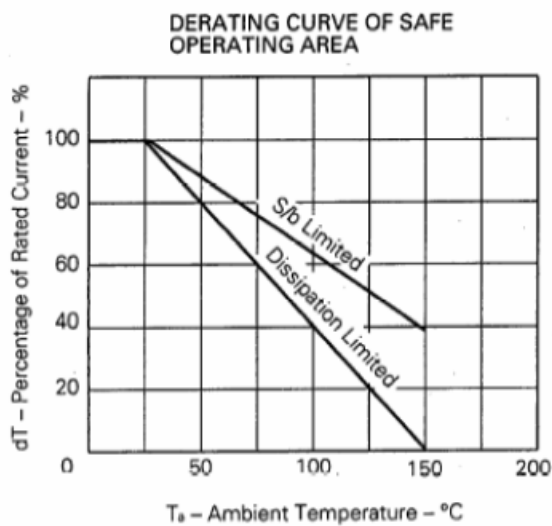
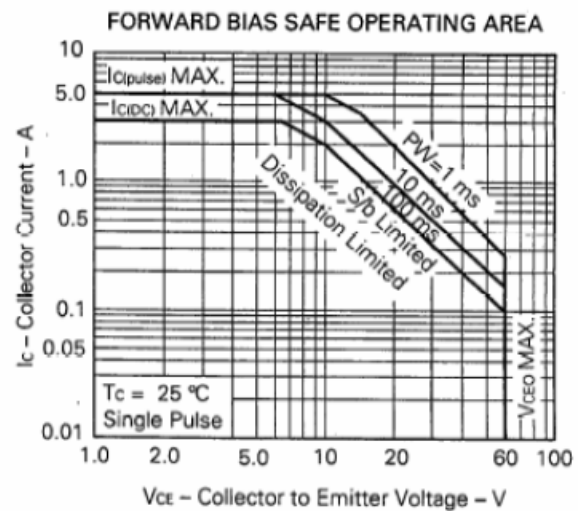
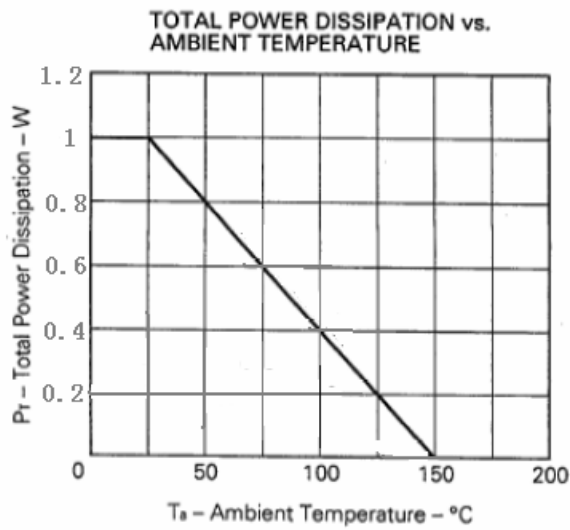
Parameter		Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage		$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	60			V
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	60			V
Emitter-base breakdown voltage		$V_{(BR)EBO}$	$I_E=100\mu A, I_C=0$	7			V
Collector cut-off current		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 $h_{FE(2)}$

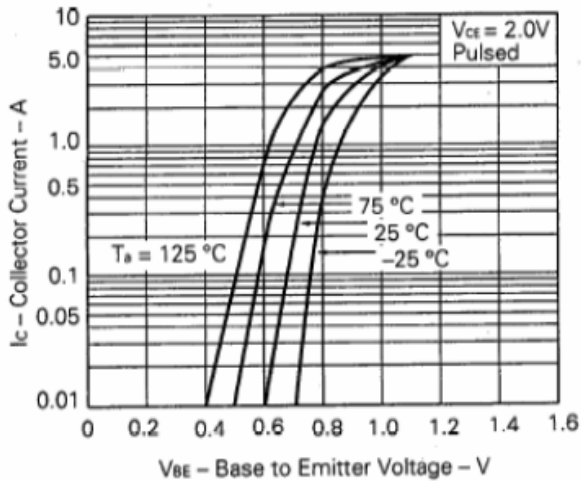
Rank	M	L	K
Range	100-200	160-320	200-400

Typical Characteristics

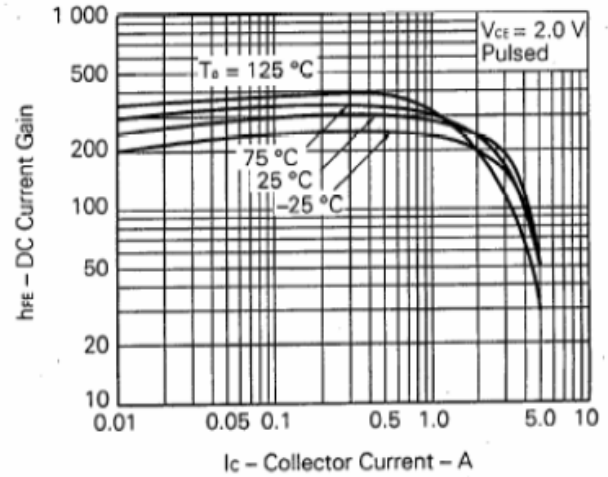
2SD1899-Z



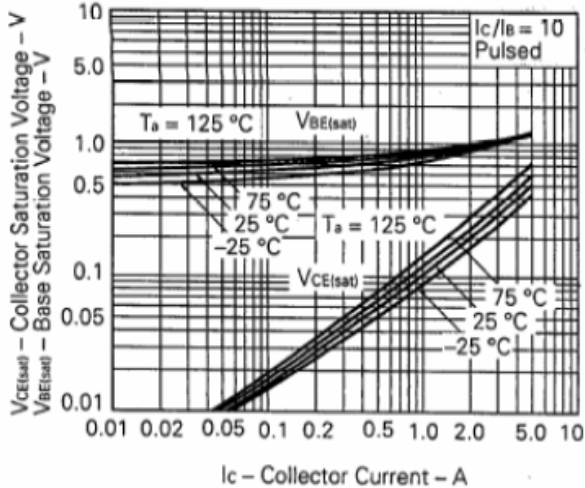
COLLECTOR CURRENT vs.
BASE TO EMITTER VOLTAGE



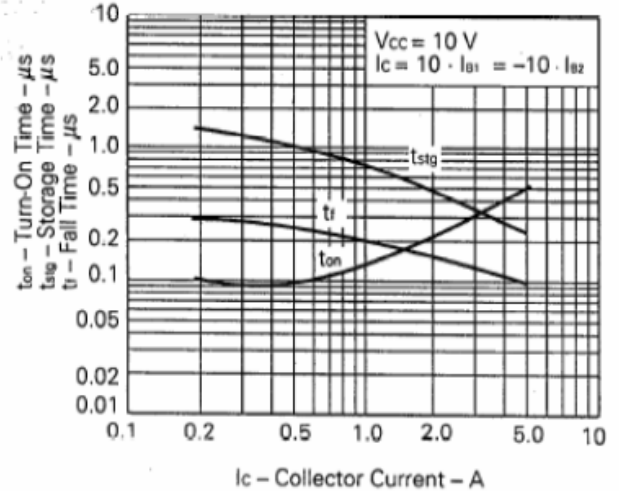
DC CURRENT GAIN vs.
COLLECTOR CURRENT



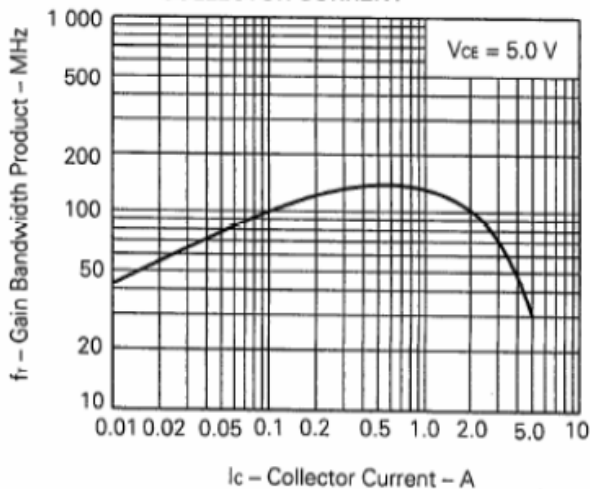
BASE AND COLLECTOR SATURATION
VOLTAGE vs. COLLECTOR CURRENT



FALL, STORAGE AND TURN ON TIME vs.
COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs.
COLLECTOR CURRENT



OUTPUT CAPACITANCE vs.
COLLECTOR TO BASE VOLTAGE

