2SD965A TRANSISTOR (NPN)

SOT-89

FEATURES

- Audio amplifier
- Flash unit of camera
- Switching circuit

MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	40	V
V_{CEO}	Collector-Emitter Voltage	30	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current -Continuous	5	A
P_C	Collector Power Dissipation	750	mW
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	167	℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55~150	℃

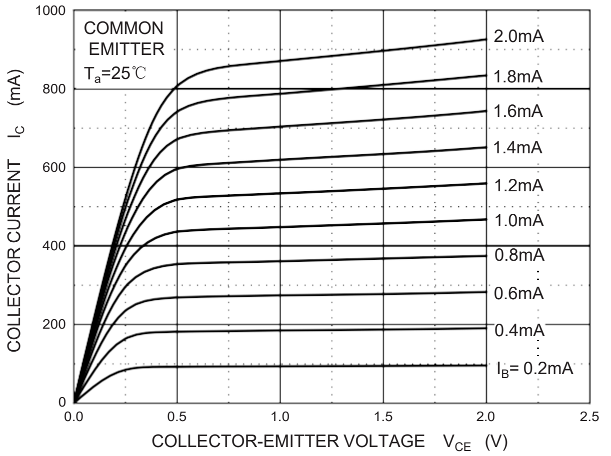
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=0.1mA, I_E=0	40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C= 1mA. I_B=0	30			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E= 10μA, I_C=0	7			V
Collector cut-off current	I_{CBO}	V_{CB}= 10V,I_E=0			0.1	μA
Emitter cut-off current	I_{EBO}	V_{EB}=7V, I_C=0			0.1	μA
DC current gain	$h_{FE(1)}$	V_{CE}= 2 V, I_C=1mA		200		
	$h_{FE'(2)}$	V_{CE}= 2V, I_C = 500mA	230		800	
	$h_{FE(3)}$	V_{CE}= 2V, I_C =2A	150			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=3A, I_B=0.1A			1	V
Transition frequency	f_T	V_{CE}=6V, I_C=50mA		150		MHz
Out capacitance	C_{ob}	V_{CB}=20 V , I_E=0, f=1MH$_Z$			50	pF

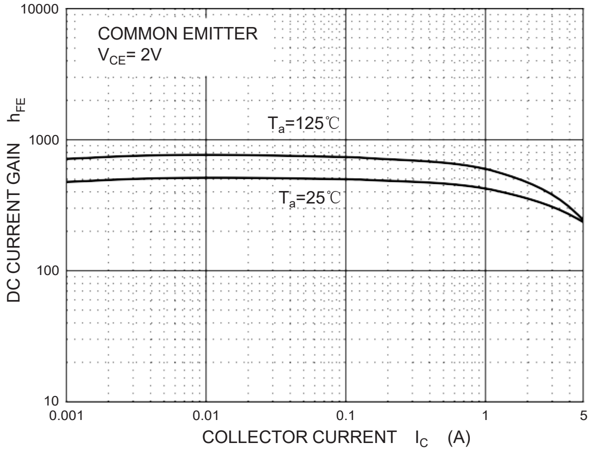
CLASSIFICATION OF $h_{FE(2)}$

Rank	**Q**	**R**	**S**
Range	230-380	340-600	560-800

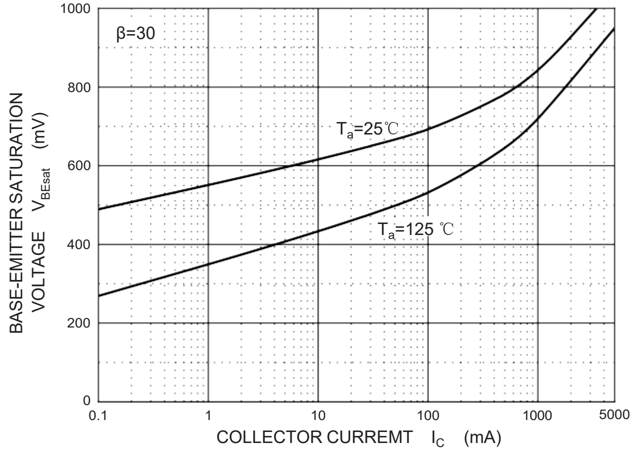
Static Characteristic



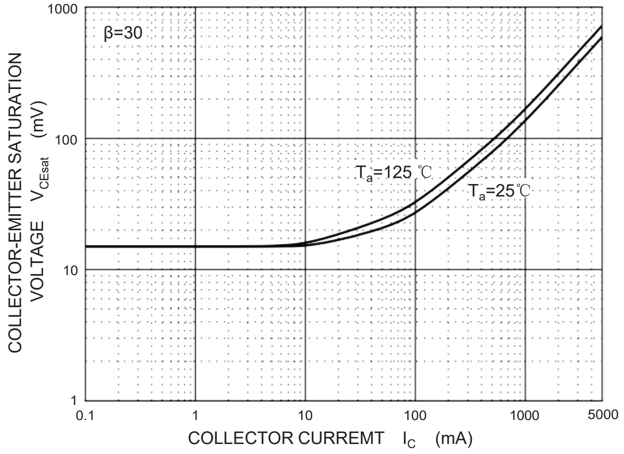
h_{FE} —— I_C



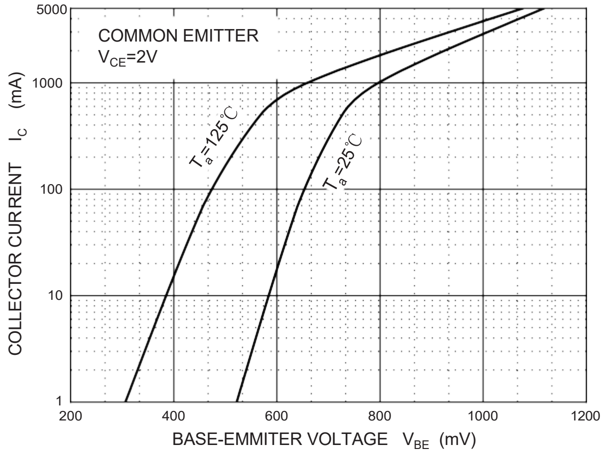
V_{BEsat} —— I_C



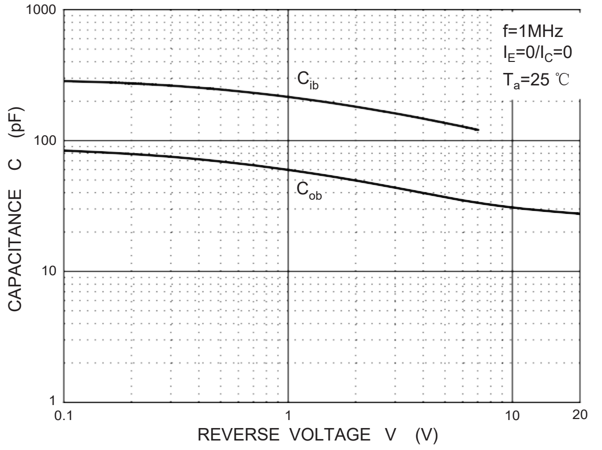
V_{CEsat} —— I_C



I_C —— V_{BE}



C_{ob}/C_{ib} —— V_{CB}/V_{EB}



P_C —— T_a