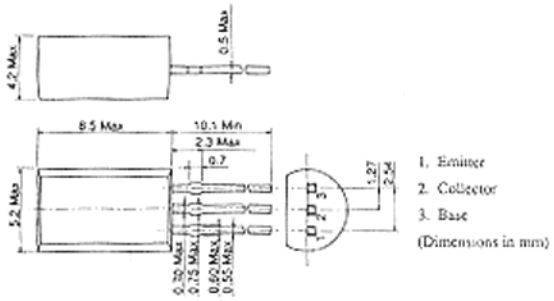
HITACHI

2SD1868, 2SD1869

SILICON NPN EPITAXIAL

LOW FREQUENCY HIGH VOLTAGE AMPLIFIER

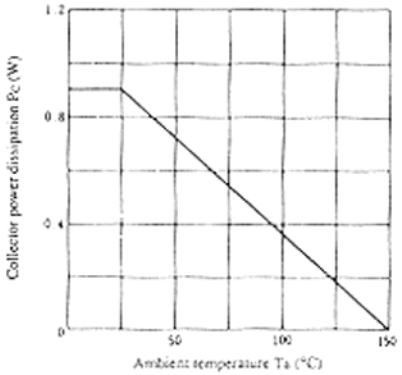


(JEDEC TO-92 MOD.)

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	2SD1868	2SD1869	Unit
Collector to base voltage	V_{CBO}	160	200	V
Collector to emitter voltage	V_{CEO}	160	200	V
Emitter to base voltage	V_{EBO}	5	5	V
Collector current	I_C	100	100	mA
Collector power dissipation	P_C	0.9	0.9	W
Junction temperature	T_j	150	150	°C
Storage temperature	T_{stg}	−55 to +150	−55 to +150	°C

MAXIMUM COLLECTOR DISSIPATION CURVE



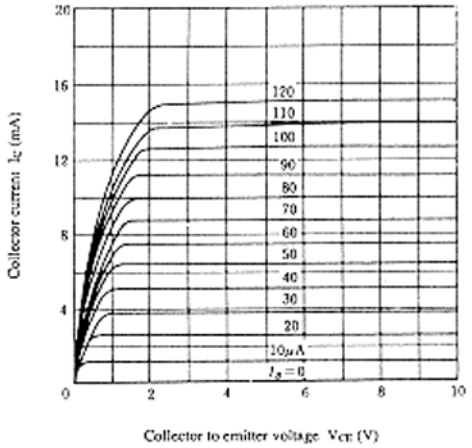
■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

Item	Symbol	Test Condition		min.	typ.	max.	Unit
Collector to base breakdown voltage	$V_{(BR)CBO}$	I_C = 10μA, I_E = 0	2SD1868	160	—	—	V
			2SD1869	200	—	—	V
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	I_C = 1mA, R_{BE} = ∞	2SD1868	160	—	—	V
			2SD1869	200	—	—	V
Emitter to base breakdown voltage	$V_{(BR)EBO}$	I_E = 10μA, I_C = 0		5	—	—	V
Collector cutoff current	I_{CBO}	2SD1868	V_{CB} = 140V, I_E = 0	—	—	10	μA
		2SD1869	V_{CB} = 160V, I_E = 0	—	—	10	μA
DC current transfer ratio	h_{FE1}*	V_{CE} = 5V, I_C = 10mA		60	—	320	
	h_{FE2}	V_{CE} = 5V, I_C = 1mA		30	—	—	
Base to emitter voltage	V_{BE}	V_{CE} = 5V, I_C = 10mA		—	—	1.5	V
Collector to emitter saturation voltage	$V_{CE(sat)}$	I_C = 30mA, I_B = 3mA		—	—	2	V
Gain bandwidth product	f_T	V_{CE} = 5V, I_C = 10mA		—	140	—	MHz
Collector output capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz		—	3.8	—	pF

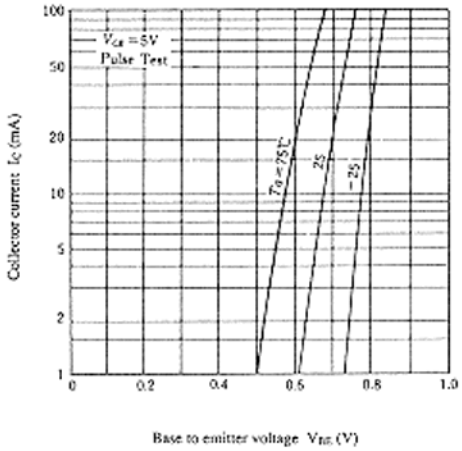
* The 2SD1868 and 2SD1869 are grouped by h_{FE1} as follows.

Grade	B	C	D
h_{FE1}	60 to 120	100 to 200	160 to 320

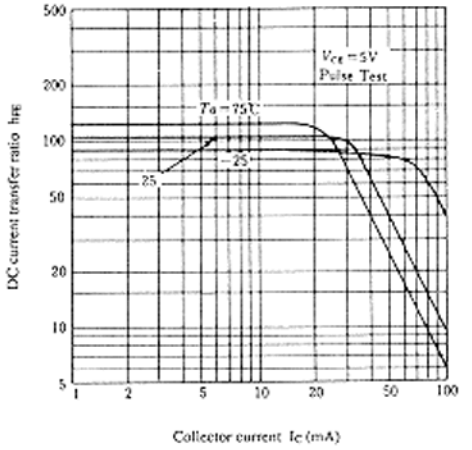
TYPICAL OUTPUT CHARACTERISTICS



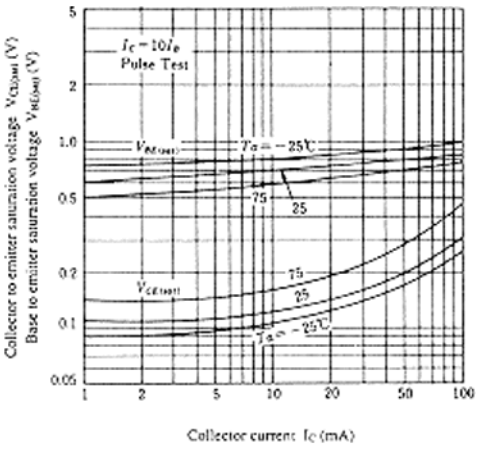
TYPICAL TRANSFER CHARACTERISTICS



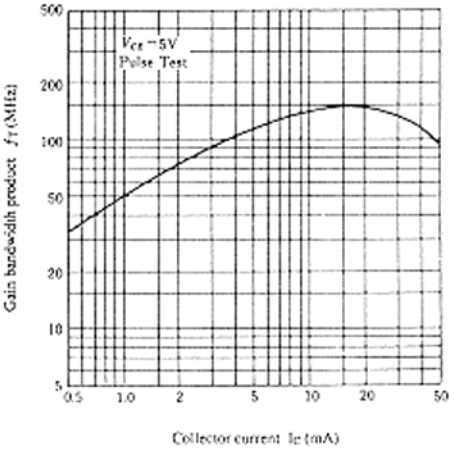
DC CURRENT TRANSFER RATIO VS. COLLECTOR CURRENT



SATURATION VOLTAGE VS. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT VS. COLLECTOR CURRENT



COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE