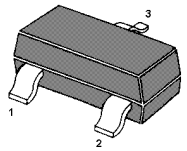
MMBTSD1616

NPN Silicon Epitaxial Planar Transistor

high collector power dissipation.



1.Base 2.Emitter 3.Collector
TO-236 Plastic Package

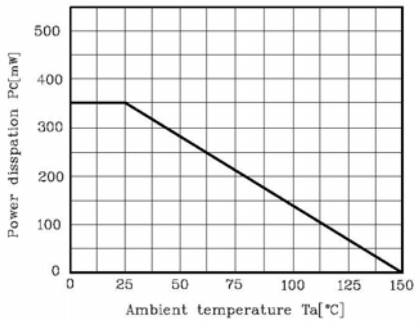
Absolute Maximum Ratings (T_a = 25 °C)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	60	V
Collector Emitter Voltage	V_{CEO}	50	V
Emitter Base Voltage	V_{EBO}	6	V
Collector Current	I_C	1	A
Power Dissipation	P_{tot}	350	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	- 55 to + 150	°C

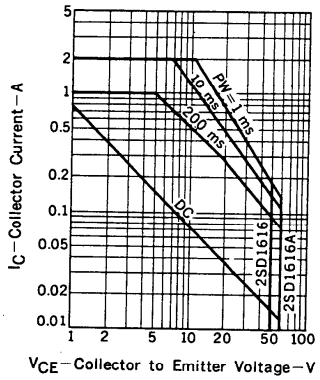
Characteristics at T_a = 25 °C

Parameter			Symbol	Min.	Typ.	Max.	Unit
DC Current Gain							
at V_{CE} = 2 V, I_C = 0.1 A	Current Gain Group	R	h_{FE}	135	-	270	-
		O	h_{FE}	200	-	400	-
		Y	h_{FE}	300	-	600	-
at V_{CE} = 2 V, I_C = 1 A			h_{FE}	81	-	-	-
Collector Base Cutoff Current at V_{CB} = 60 V			I_{CBO}	-	-	100	nA
Emitter Base Cutoff Current at V_{EB} = 6 V			I_{EBO}	-	-	100	nA
Collector Base Breakdown Voltage at I_C = 10 µA			$V_{(BR)CBO}$	60	-	-	V
Collector Emitter Breakdown Voltage at I_C = 2 mA			$V_{(BR)CEO}$	50	-	-	V
Emitter Base Breakdown Voltage at I_E = 10 µA			$V_{(BR)EBO}$	6	-	-	V
Collector Emitter Saturation Voltage at I_C = 1 A, I_B = 50 mA			$V_{CE(sat)}$	-	-	0.3	V
Base Emitter Saturation Voltage at I_C = 1 A, I_B = 50 mA			$V_{BE(sat)}$	-	-	1.2	V
Base Emitter On Voltage at V_{CE} =2 V, I_C = 50 mA			$V_{BE(on)}$	0.6	-	0.7	V
Collector Output Capacitance at V_{CB} = 10 V, f = 1 MHz			C_{ob}	-	-	19	pF
Transition Frequency at V_{CE} = 2 V, I_C = 0.1 A			f_T	100	-	-	MHz
Turn-on Time at V_{CE} = 10 V, I_C = 100 mA, I_{B1} = -I_{B2} = 10 mA			t_{on}	-	70	-	ns
Storage Time at V_{CE} = 10 V, I_C = 100 mA, I_{B1} = -I_{B2} = 10 mA			t_s	-	950	-	ns
Fall Time at V_{CE} = 10 V, I_C = 100 mA, I_{B1} = -I_{B2} = 10 mA			t_f	-	70	-	ns

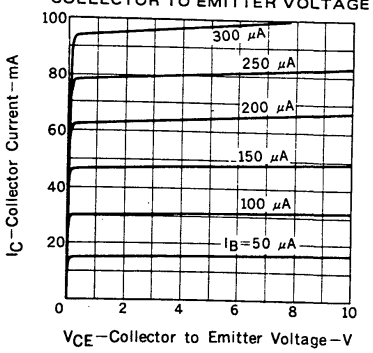
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



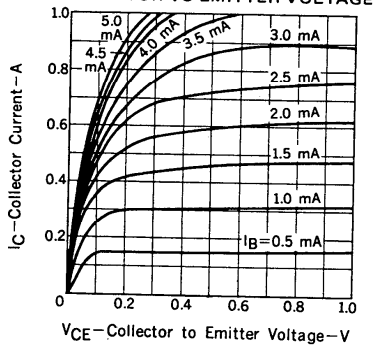
SAFE OPERATING AREAS (TRANSIENT THERMAL RESISTANCE METHOD)



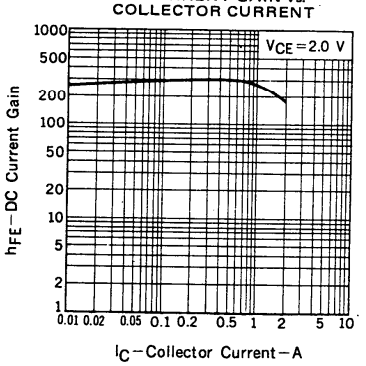
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



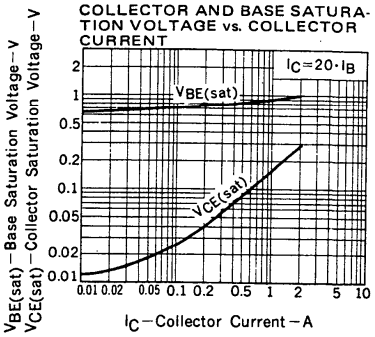
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



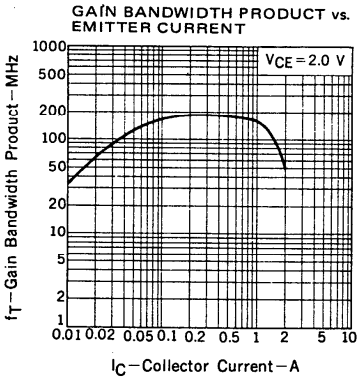
DC CURRENT GAIN vs. COLLECTOR CURRENT



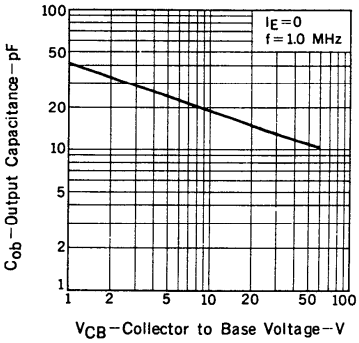
COLLECTOR AND BASE SATURATION VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



SWITCHING TIME vs. COLLECTOR CURRENT