MOSPEC

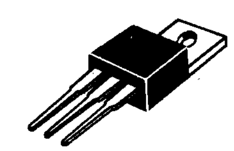
COMPLEMENTARY SILICON PLASTIC POWER TRANSISTORS

...designed for use in audio frequency power amplifier,low speed switching application

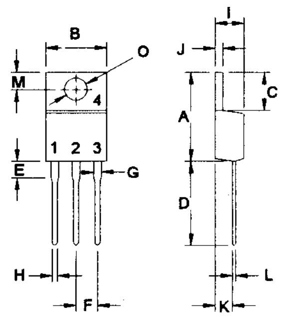
PNP	NPN
2SB703	2SD743
2SD703A	2SD743A

4.0 AMPERE
COMPLEMENTARY SILICON
POWER TRANASISTORS
80-100 VOLTS
40 WATTS

FEATURES:
* Collector-Emitter Voltage
  V_{CEO}= 80V(Min)-2SB703,2SD743
  = 100V(Min)-2SB703A,2SD743A
* DC Current Gain
  hFE= 40-200@I_C= 500mA



TO-220



PIN 1.BASE
2.COLLECTOR
3.EMITTER
4.COLLECTOR(CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	14.68	15.31
B	9.78	10.42
C	5.01	6.52
D	13.06	14.62
E	3.57	4.07
F	2.42	3.66
G	1.12	1.36
H	0.72	0.96
I	4.22	4.98
J	1.14	1.38
K	2.20	2.97
L	0.33	0.55
M	2.48	2.98
O	3.70	3.90

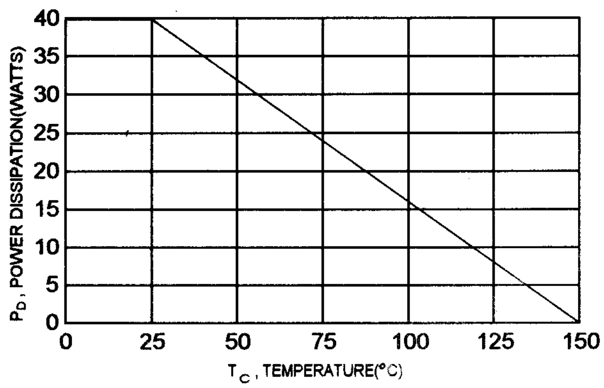
MAXIMUM RATINGS

Characteristic	Symbol	2SB703 2SB703	2SD703A 2SD743A	Unit
Collector-Emitter Voltage	V_{CEO}	80	100	V
Collector-Base Voltage	V_{CBO}	100	100	V
Emitter-Base Voltage	V_{EBO}	5.0		V
Collector Current - Continuous - Peak	I_C I_{CM}	4.0 6.0		A
Base current	I_B	1.0		A
Total Power Dissipation @T_C = 25°C Derate above 25°C	P_D	40 0.322		W W/°C
Operating and Storage Junction Temperature Range	T_J ,T_{STG}	-55 to +150		°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	Rθjc	3.125	°C/W

FIGURE -1 POWER DERATING



ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

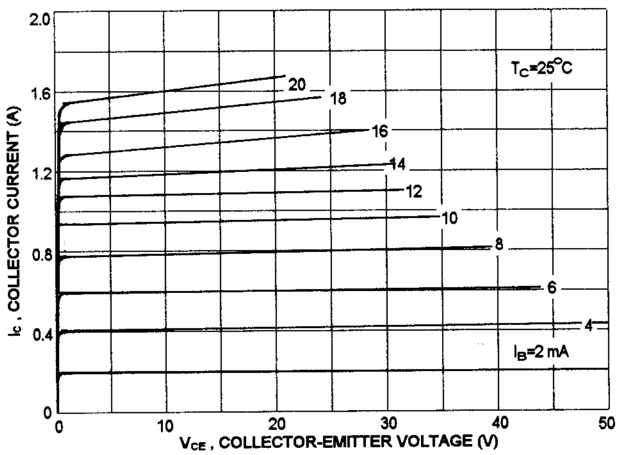
Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Base Breakdown Voltage (I_C= 1.0 mA, I_B= 0)	2SB703, 2SD743 2SB703A,2SD743A	$V_{(BR)CBO}$	80 100		V
Collector-Emitter Breakdown Voltage (I_C= 10 mA, I_B= 0)	2SB703, 2SD743 2SB703A,2SD743A	$V_{(BR)CEO}$	80 100		V
Emitter-Base Breakdown Voltage (I_B= 1.0 mA, I_C= 0)		$V_{(BR)EBO}$	5.0		V
Collector Cutoff Current (V_{CB}= 80 V, I_E= 0)		I_{CBO}		10	uA
Emitter Cutoff Current (V_{EB}= 3.0 V, I_C= 0)		I_{EBO}		10	uA
ON CHARACTERISTICS (1)					
DC Current Gain (I_C= 20 mA, V_{CE}= 5.0 V) (I_C= 0.5 A, V_{CE}= 5.0 V)*	 2SB703,A/2SD743,A All Devices	 hFE(2) hFE(3)	 30/20 40	 200	
Collector-Emitter Saturation Voltage (I_C= 3.0 A, I_B= 300 mA)		$V_{CE(sat)}$		2.0	V
Base-Emitter Saturation Voltage (I_C= 3.0 A, I_B= 300 mA)		$V_{BE(on)}$		2.0	V
DYNAMIC CHARACTERISTICS					
Current-Gain-Bandwidth Product (I_C = 0.1 A, V_{CE} = 5.0 V, f = 1.0 MHz)		f_T	10		MHz

(1) Pulse Test: Pulse Width =300 us,Duty Cycle ≦ 2.0%

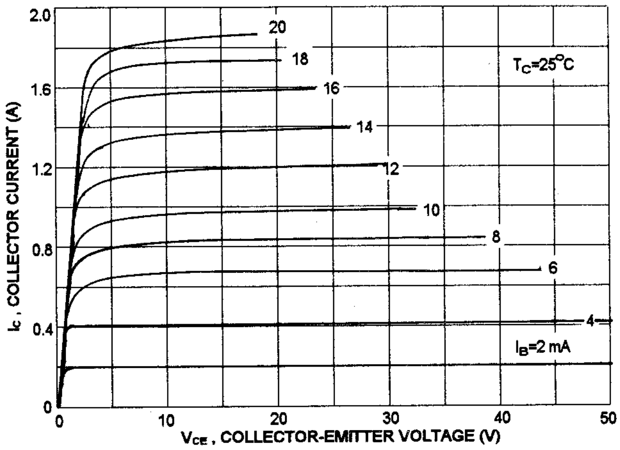
* hFE(3) Classification :

40 S 80	60 R 120	100 Q 200

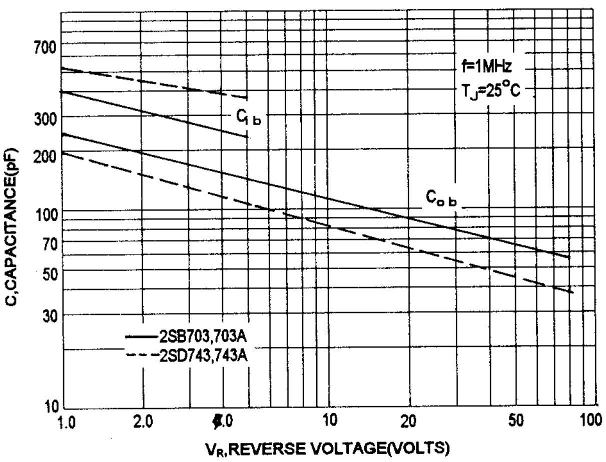
2SB703,2SB703A Ic - Vce



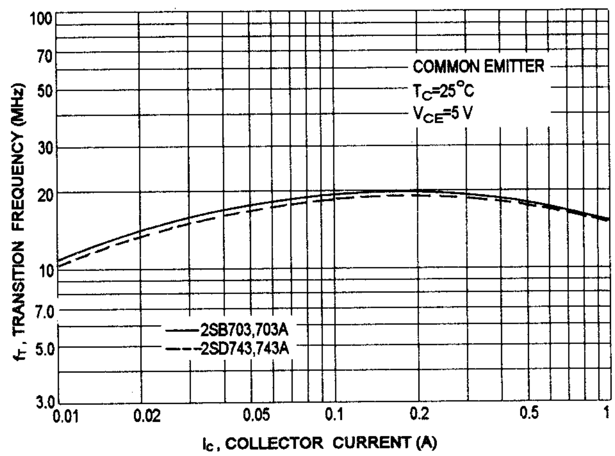
2SD743,2SD743A Ic - Vce



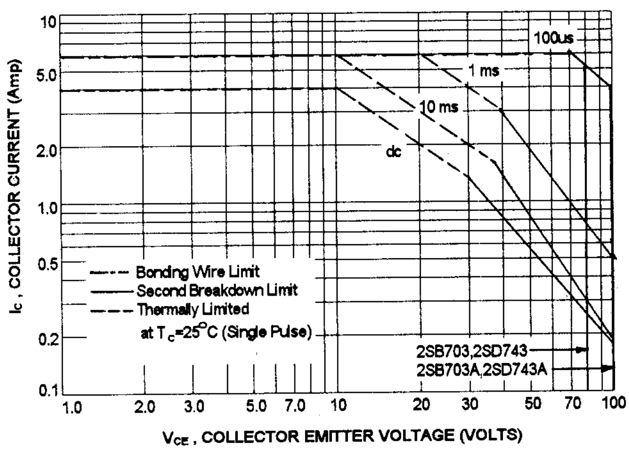
CAPACITANCES



f$_T$ - Ic



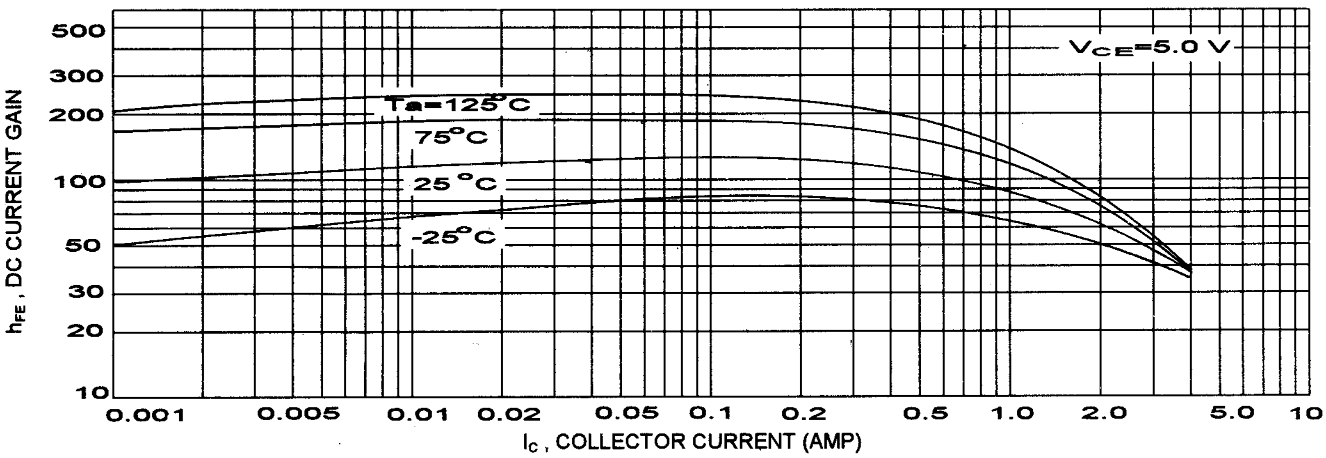
ACTIVE-REGION SAFE OPERATING AREA (SOA)



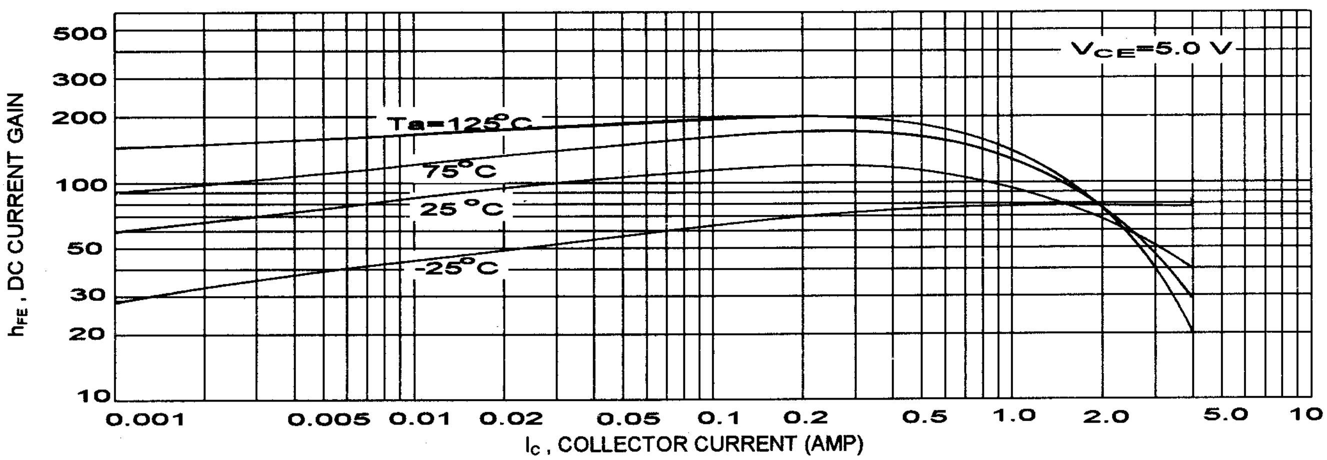
There are two limitation on the power handling ability of a transistor:average junction temperature and second breakdown safe operating area curves indicate I_C-V_{CE} limits of the transistor that must be observed for reliable operation i.e., the transistor must not be subjected to greater dissipation than curves indicate.

The data of SOA curve is base on $T_{J(PK)}$=150 °C;T_C is variable depending on conditions. second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(PK)}$<150°C,At high case temperatures, thermal limita - tion will reduce the power that can be handled to values less than the limitations imposed by second breakdown.

2SB703,2SB703A DC CURRENT GAIN



2SD743,2SD743A DC CURRENT GAIN



"ON" VOLTAGE