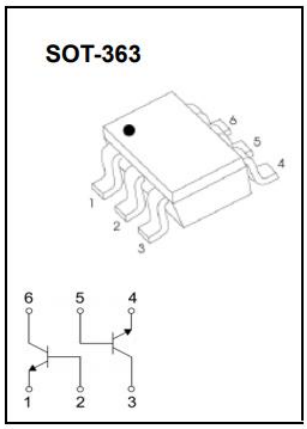
(NPN+NPN) Silicon NPN Epitaxial Planer Transistor

Feature

Pb-Free Package is available.

MARKING:5H

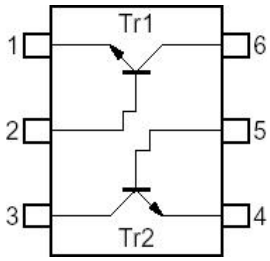


MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Collector-Emitter Voltage	V_{CEO}	50	V
Collector-Base Voltage	V_{CBO}	60	V
Emitter-Base Voltage	V_{EBO}	7	V
Collector current-continuoun	IC	150	mAdc

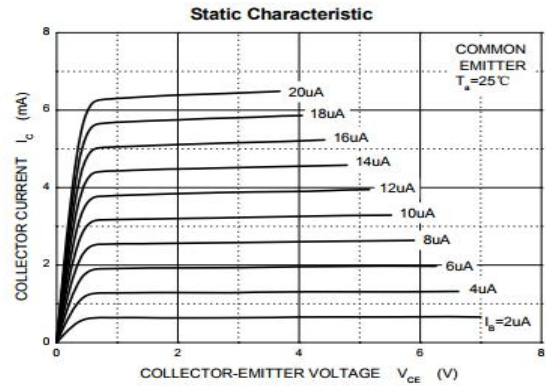
THERMAL CHARATEERISTICS

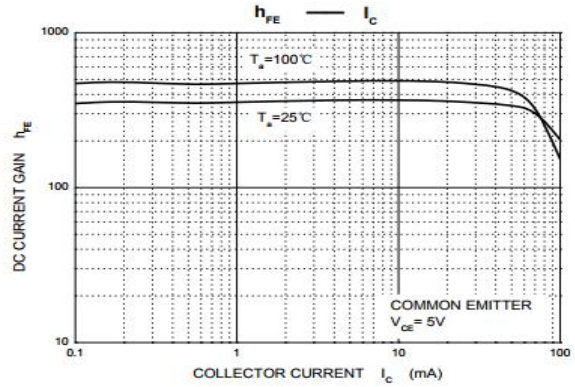
Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board, (1) T_A=25°C	P_D	380	mW
Thermal Resistance, Junction to Ambient	$R\theta_{JA}$	328	°C/W
Junction and Storage Temperature	Tj ,Tstg	-55 to +150	°C

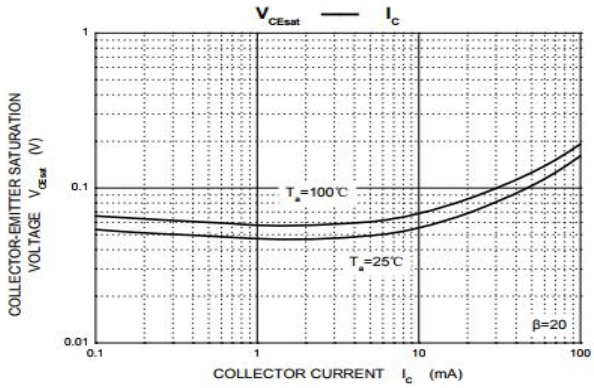


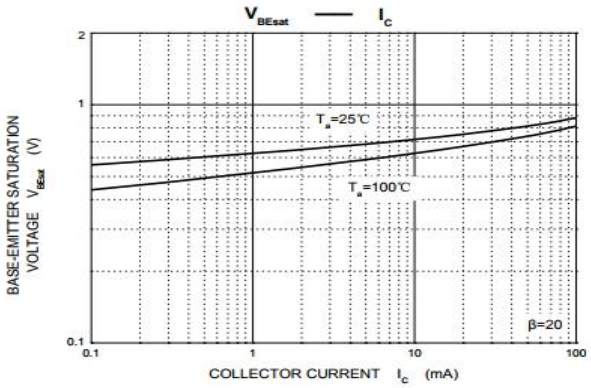
ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

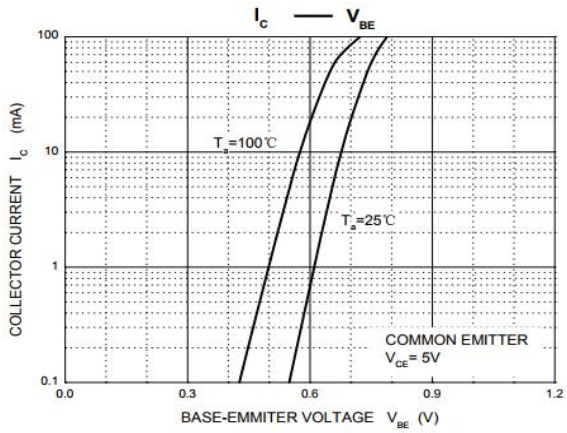
Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage (IC=1mA)	V(BR)CEO	50	-	-	V
Emitter-Base Breakdown Voltage (IE=50 A)	V(BR)EBO	7	-	-	V
Collector-Base Breakdown Voltage (IC=50 A)	V(BR)CBO	60	-	-	V
Collector Cutoff Current (VCB=60V)	ICBO	-	-	0.1	uA
EMITTER CUTOFF CURRENT VEB=7V	IEBO	-	-	0.1	uA
ON CHARACTERISTICS					
DC Current Gain (IC=1mA, VCE=6.0V)	Hfe	120	-	560	
Collector-Emitter Saturation Voltage (IC=50mA,IB=5mA)	VCE(SAT)	-	-	0.4	V
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain-Bandwidth Product (VCE = 12.0V; IE =-2.0 mA,f=100MHZ)	Ft	-	180	-	MHz
Output Capacitance(VCE=12V,f=1.0MHz)	Cobo	-	2	3.5	Pf

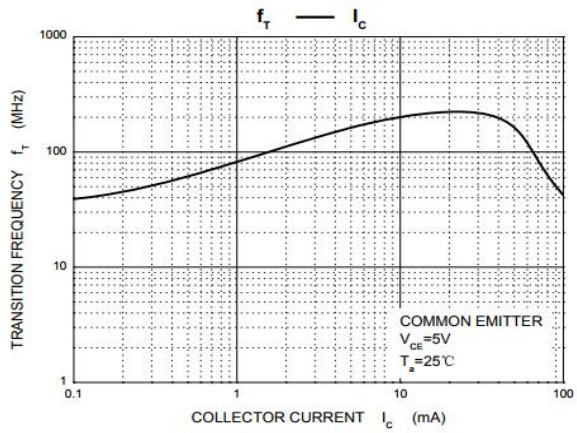

Static Characteristic
COMMON EMITTER
T_a=25℃
20uA
18uA
16uA
14uA
12uA
10uA
8uA
6uA
4uA
I_B=2uA
COLLECTOR CURRENT I_C (mA)
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)

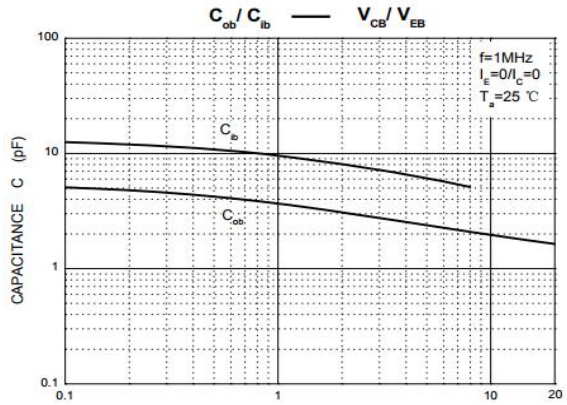

h_{FE} — I_C
T_a=100℃
T_a=25℃
COMMON EMITTER
V_{CE}= 5V
DC CURRENT GAIN h_{FE}
COLLECTOR CURRENT I_C (mA)

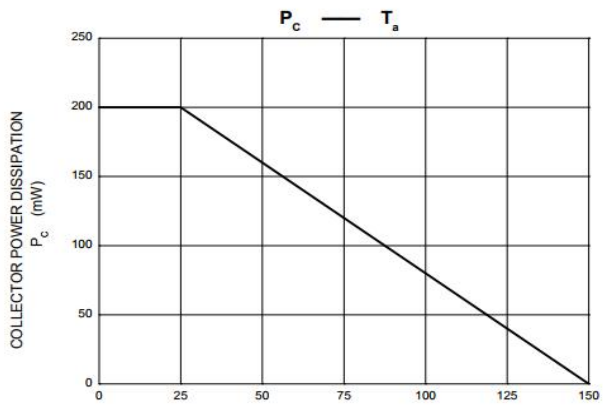

V_{CEsat} — I_C
T_a=100℃
T_a=25℃
β=20
COLLECTOR-EMITTER SATURATION VOLTAGE V_{CEsat} (V)
COLLECTOR CURRENT I_C (mA)


V_{BEsat} — I_C
T_a=25℃
T_a=100℃
β=20
BASE-EMITTER SATURATION VOLTAGE V_{BEsat} (V)
COLLECTOR CURRENT I_C (mA)


I_C — V_{BE}
T_a=100℃
T_a=25℃
COMMON EMITTER
V_{CE}= 5V
COLLECTOR CURRENT I_C (mA)
BASE-EMMITER VOLTAGE V_{BE} (V)


f_T — I_C
COMMON EMITTER
V_{CE}=5V
T_a=25℃
TRANSITION FREQUENCY f_T (MHz)
COLLECTOR CURRENT I_C (mA)


C_{ob} / C_{ib} — V_{CB} / V_{EB}
f=1MHz
I_E=0/I_C=0
T_a=25 ℃
C_{ib}
C_{ob}
CAPACITANCE C (pF)


P_C — T_a
COLLECTOR POWER DISSIPATION P_C (mW)