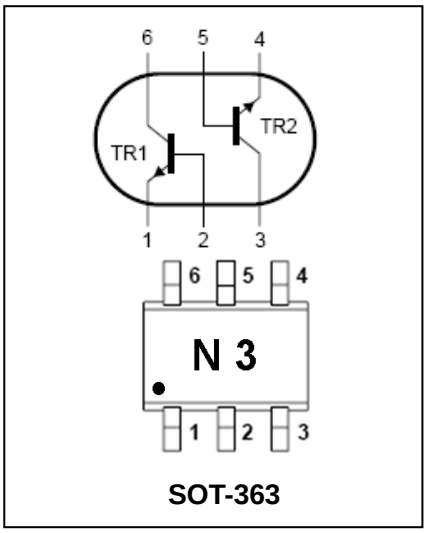
NPN General Purpose Double Transistor TBC817DS

FEATURES

HF

- High current
- 200mW total power dissipation
- Halogen free
- Qualified to AEC-Q101 standards for high reliability



SOT-363

APPLICATIONS

- General purpose switching and amplification
- Puse-pull amplifiers
- Multi-phase stepper motor drivers

ORDERING INFORMATION

Type No.	Marking	Package Code
TBC817DS	N3	SOT-363

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	50	V
V_{CEO}	Collector-Emitter Voltage	45	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current -Continuous	500	mA
I_{CM}	Peak Collector Cuurent	1	A
I_{BM}	Peak Base Current	200	mA
P_{tot}	Total Power Dissipation	200	mW
T_{amb}	Operating Ambient Temperature	-65 to +150	℃
T_j, T_{stg}	Junction and Storage Temperature	-65 to +150	℃

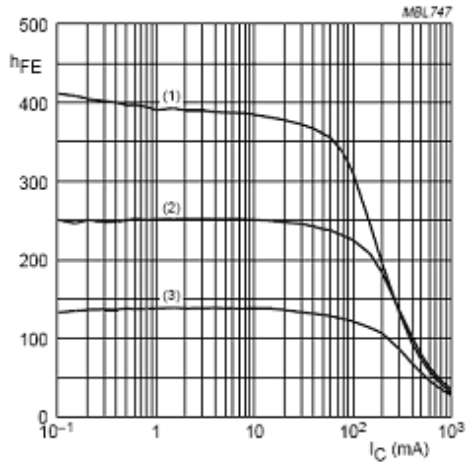
NPN General Purpose Double Transistor TBC817DS

ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=10μA I_E=0	50	-	-	V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=10mA I_B=0	45	-	-	V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=10μA I_C=0	5	-	-	V
Collector-base cut-off current	I_{CBO}	V_{CB}=20V I_E=0 V_{CB}=20V I_E=0 T_j=150℃	-	-	100 5	nA μA
Emitter-base cut-off current	I_{EBO}	V_{EB}=5V I_C=0		-	100	nA
DC current gain	h_{FE}	V_{CE}=1V I_C=100mA V_{CE}=1V I_C=500mA	160 40	-	400	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=500mA I_B=50mA	-	-	0.7	V
Base-emitter on voltage	V_{BE}	I_C=500mA V_{CE}=1.0V	-	-	1.2	V
Transition frequency	f_T	V_{CB}=5.0V,I_C=10mA,f=100MHz	100	-	-	MHz
Transition capacitance	C_c	V_{CB}=10V,f=1.0MHz	-	5	-	pF

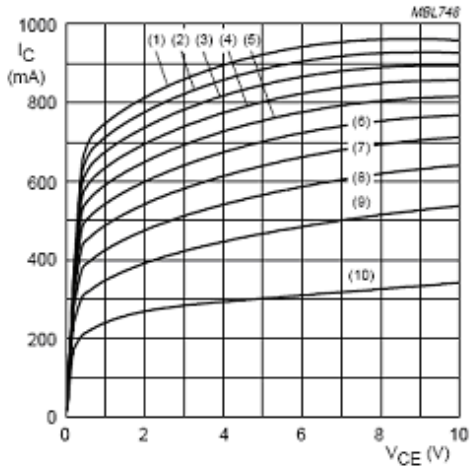
NPN General Purpose Double Transistor TBC817DS

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified



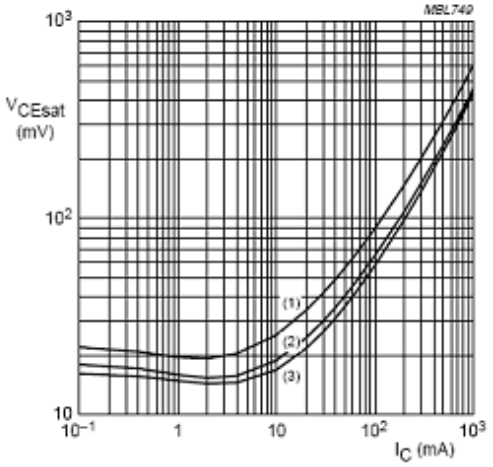
V_{CE} = 1 V.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

Fig.1 DC current gain as a function of collector current; typical values.



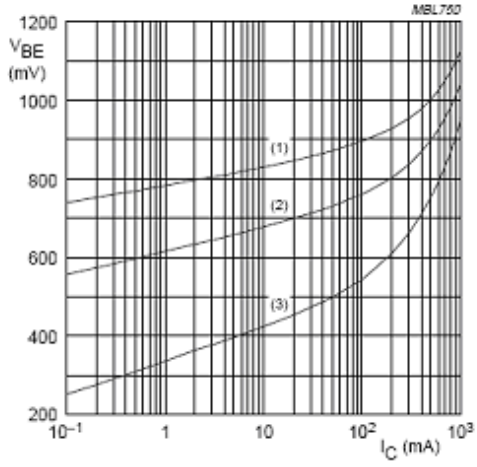
(1) I_B = 15 mA.
(2) I_B = 13.5 mA.
(3) I_B = 12 mA.
(4) I_B = 10.5 mA.
(5) I_B = 9 mA.
(6) I_B = 7.5 mA.
(7) I_B = 6 mA.
(8) I_B = 4.5 mA.
(9) I_B = 3 mA.
(10) I_B = 1.5 mA.

Fig.2 Collector current as a function of collector-emitter voltage; typical values.



I_C/I_B = 10.
(1) T_{amb} = 150 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = −55 °C.

Fig.3 Collector-emitter saturation voltage as a function of collector current; typical values.



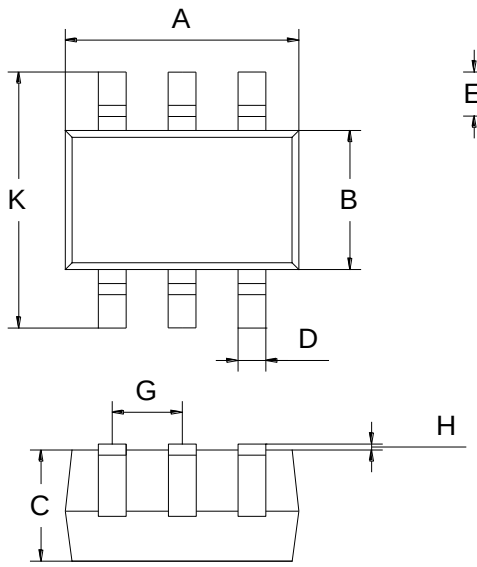
V_{CE} = 1 V.
(1) T_{amb} = −55 °C.
(2) T_{amb} = 25 °C.
(3) T_{amb} = 150 °C.

Fig.4 Base-emitter voltage as a function of collector current; typical values.

NPN General Purpose Double Transistor TBC817DS

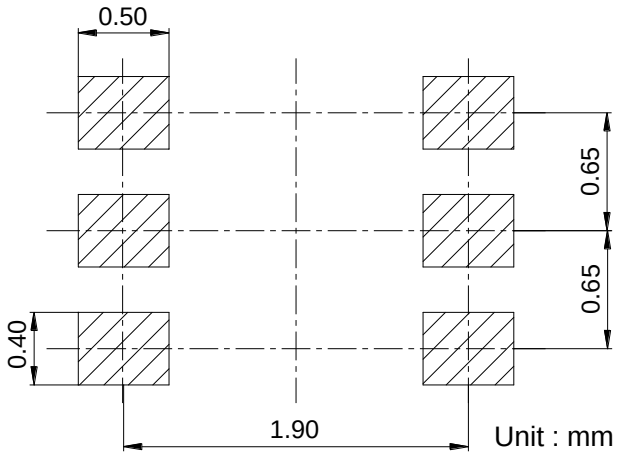
PACKAGE OUTLINE

Plastic surface mounted package SOT-363



SOT-363		
Dim	Min	Max
A	2.00	2.20
B	1.15	1.35
C	0.85	1.05
D	0.15	0.35
E	0.25	0.40
G	0.60	0.70
H	0.02	0.10
J	0.05	0.15
K	2.20	2.40
All Dimensions in mm		

SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
TBC817DS	SOT-363	3000 pcs / Tape & Reel