Ordering number: EN1797B

SANYO

No.1797B

2SB921L/2SD1237L

PNP/NPN Epitaxial Planar Silicon Transistors

80V/7A Switching Applications

APPLICATIONS

- Suitable for relay drivers, high-speed inverters, converters, and other general large-current switching applications

FEATURES

- Low collector-emitter saturation voltage: $V_{CE(sat)}$= – 0.5V(PNP), 0.4V(NPN) max.
- Large current capacity

Values for 2SB921 shown in ( )

ABSOLUTE MAXIMUM RATINGS/Ta=25°C

				unit
Collector-to-base voltage	V_{CBO}		(–)90	V
Collector-to-emitter voltage	V_{CEO}		(–)80	V
Emitter-to-base voltage	V_{EBO}		(–)6	V
Collector current	I_C		(–)7	A
Collector Current (Pulse)	I_{CP}		(–)12	A
Allowable collector dissipation	P_C		1.75	W
		T_c=25°C	40	W
Junction temperature	T_j		150	°C
Storage ambient temperature	T_{stg}		–55~+150	°C

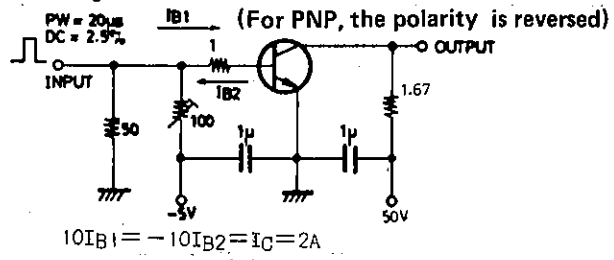
ELECTRICAL CHARACTERISTICS/Ta=25°C

			min	typ	max	unit
Collector cut-off current	I_{CBO}	V_{CB}=(–)80V, I_E=0			(–)0.1	mA
Emitter cut-off current	I_{EBO}	V_{EB}=(–)4V, I_C=0			(–)0.1	mA
DC current gain	h_{FE}(1)	V_{CE}=(–)2V, I_C=(–)1A	70*		280*	
	h_{FE}(2)	V_{CE}=(–)2V, I_C=(–)4A	30			
Gain bandwidth product	f_T	V_{CE}=(–)5V, I_C=(–)1A		20		MHz
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=(–)4A, I_B=(–)0.4A			0.4	V
					(–0.5)	V
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=(–)1mA, I_E=0	(–)90			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)80			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=(–)1mA, I_C=0	(–)6			V
Turn-on time	t_{on}	See specified test circuit.		(0.2)0.1		μs
Storage time	t_{stg}	See specified test circuit.		(0.7)1.6		μs
Fall time	t_f	See specified test circuit.		(0.2)0.4		μs

* 2SB921 and 2SD1237 are graded as follows by h_{FE} at 1A:

70	Q	140	100	R	200	140	S	280

Switching Time Test Circuit

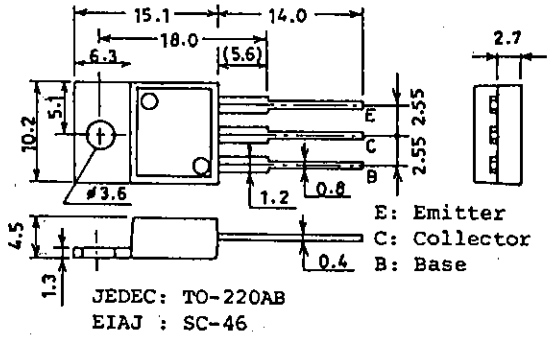


$10I_{B1}=-10I_{B2}=I_C=2A$

Unit (resistance: Ω, capacitance: F)

Package Dimensions 2010B

(unit: mm)



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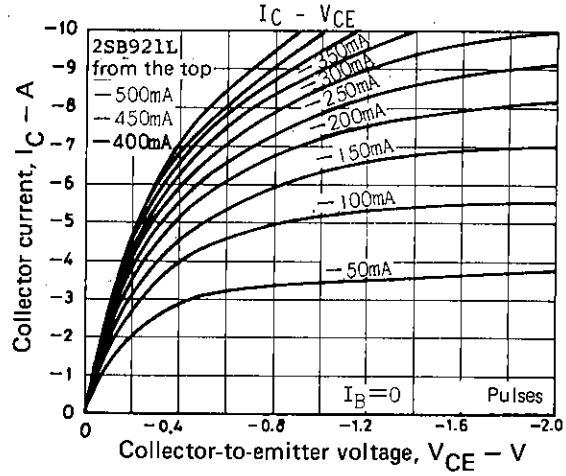
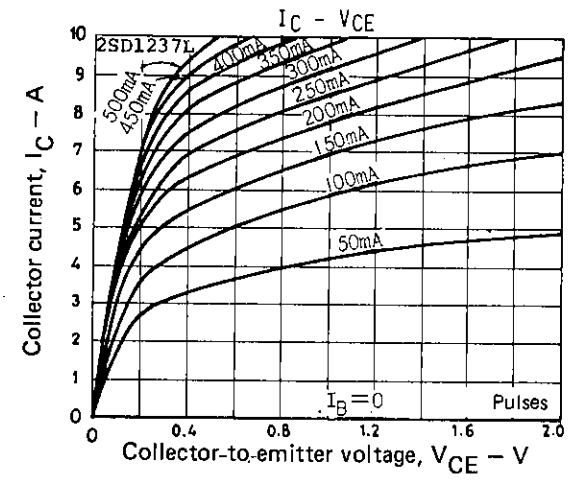
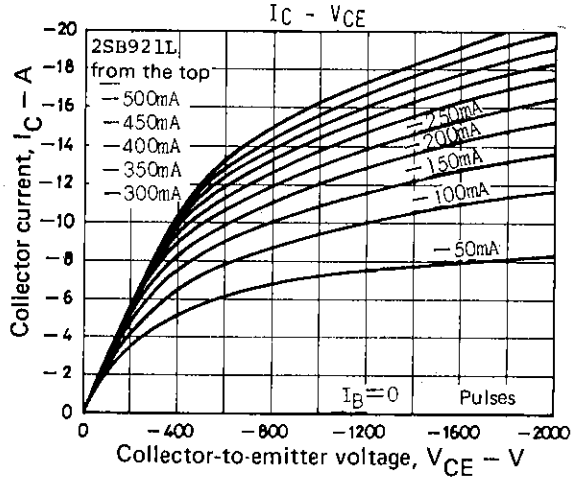
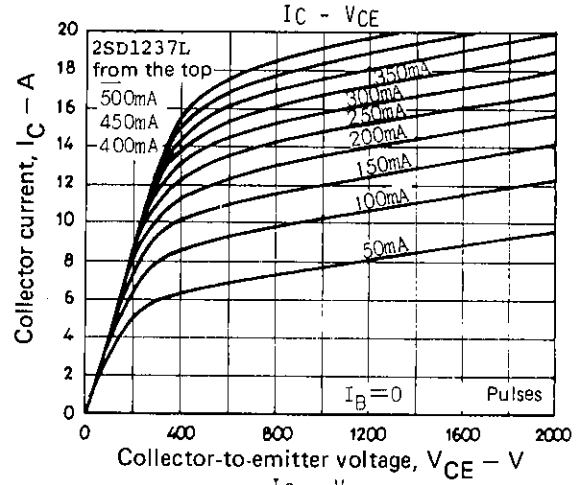
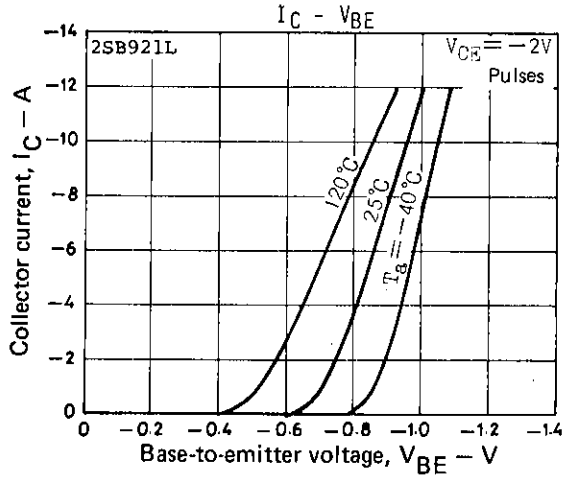
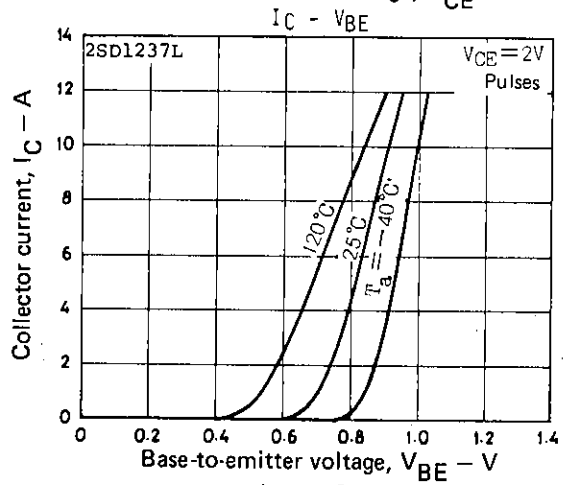

$I_C - V_{CE}$
2SB921L
from the top
−500mA
−450mA
−400mA
−350mA
−300mA
−250mA
−200mA
−150mA
−100mA
−50mA
I_B=0
Pulses
Collector current, I_C – A
Collector-to-emitter voltage, V_{CE} – V

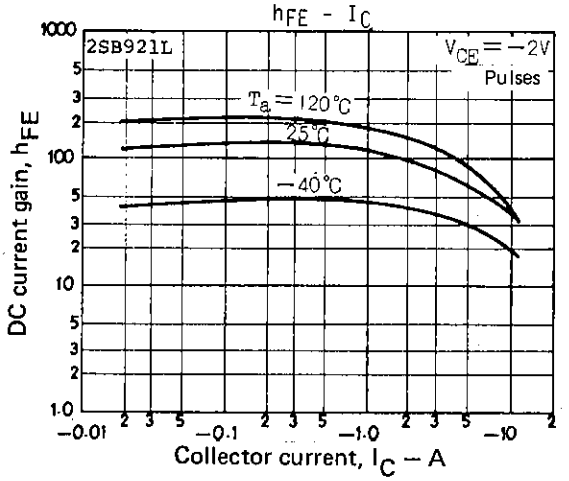

$I_C - V_{CE}$
2SD1237L
500mA
450mA
400mA
350mA
300mA
250mA
200mA
150mA
100mA
50mA
I_B=0
Pulses
Collector current, I_C – A
Collector-to-emitter voltage, V_{CE} – V

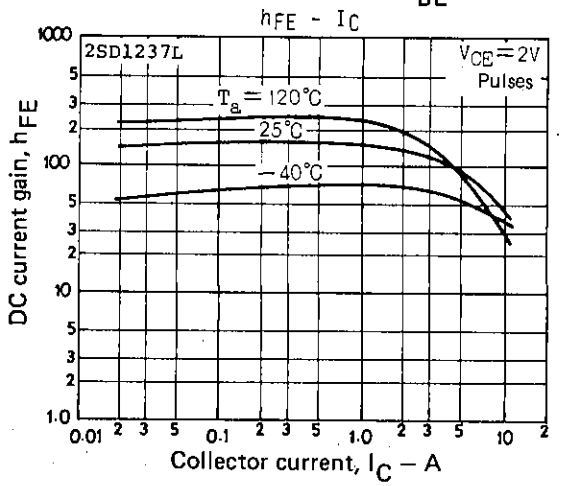

$I_C - V_{CE}$
2SB921L
from the top
−500mA
−450mA
−400mA
−350mA
−300mA
−250mA
−200mA
−150mA
−100mA
−50mA
I_B=0
Pulses
Collector current, I_C – A
Collector-to-emitter voltage, V_{CE} – V

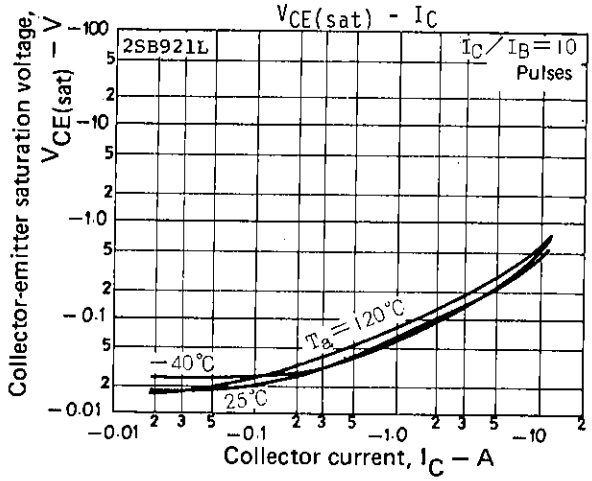

$I_C - V_{CE}$
2SD1237L
from the top
500mA
450mA
400mA
350mA
300mA
250mA
200mA
150mA
100mA
50mA
I_B=0
Pulses
Collector current, I_C – A
Collector-to-emitter voltage, V_{CE} – V

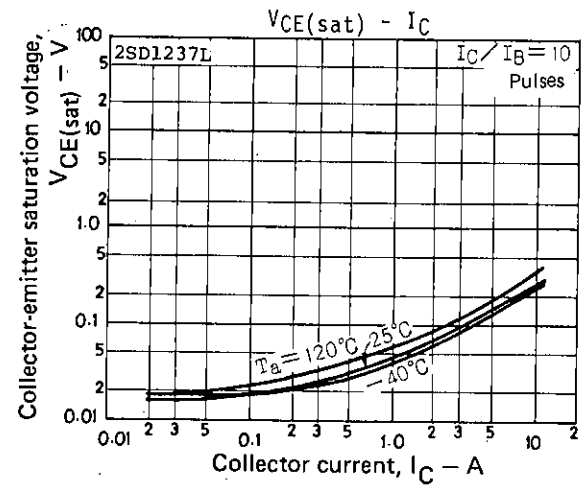

$I_C - V_{BE}$
2SB921L
V_{CE}=−2V
Pulses
120°C
25°C
T_a=−40°C
Collector current, I_C – A
Base-to-emitter voltage, V_{BE} – V

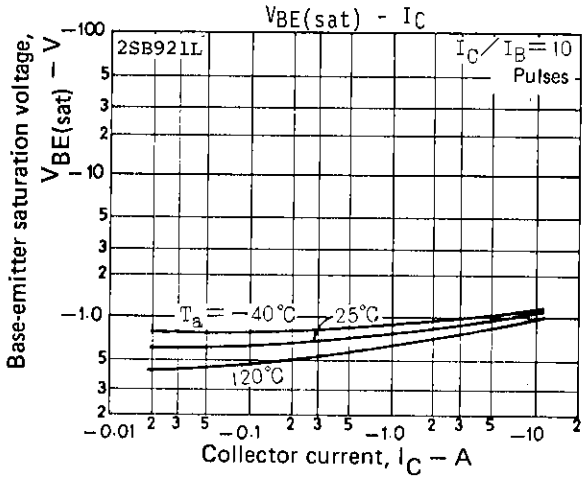

$I_C - V_{BE}$
2SD1237L
V_{CE}=2V
Pulses
120°C
25°C
T_a=−40°C
Collector current, I_C – A
Base-to-emitter voltage, V_{BE} – V

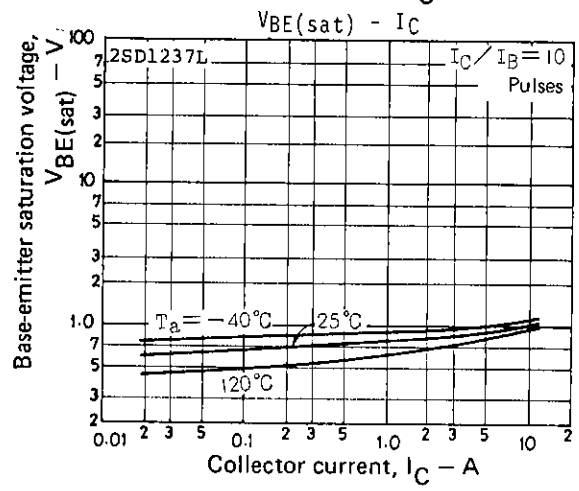

$h_{FE} - I_C$
2SB921L
V_{CE}=−2V
Pulses
T_a=120°C
25°C
−40°C
DC current gain, h_{FE}
Collector current, I_C – A

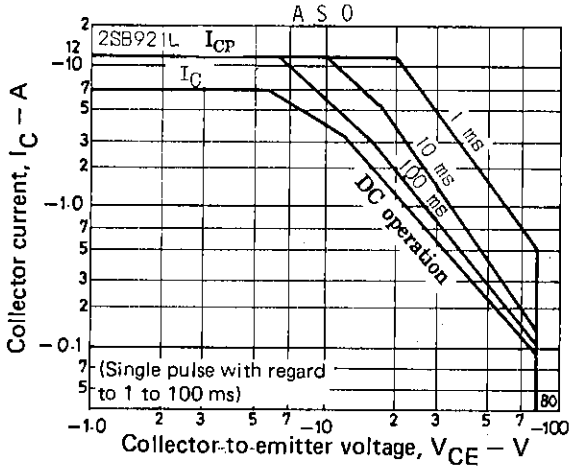

$h_{FE} - I_C$
2SD1237L
V_{CE}=2V
Pulses
T_a=120°C
25°C
−40°C
DC current gain, h_{FE}
Collector current, I_C – A

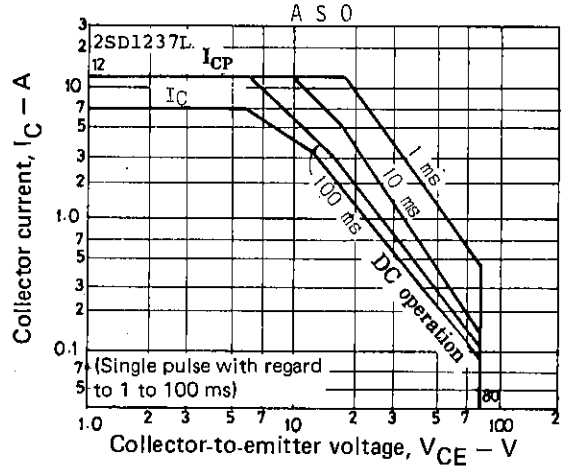

VCE(sat) - IC
2SB921L
IC/IB=10
Pulses
Ta=120°C
25°C
−40°C
Collector-emitter saturation voltage, VCE(sat) − V
Collector current, IC − A

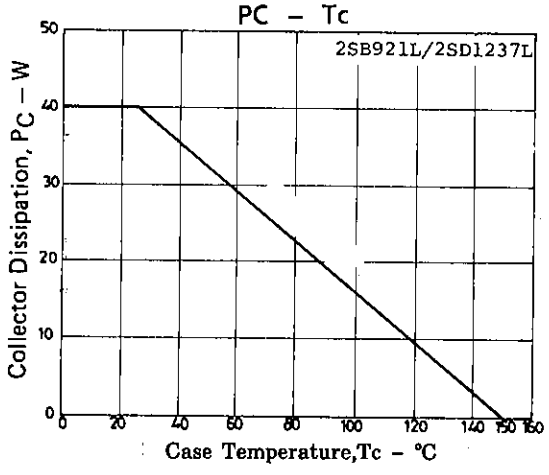

VCE(sat) - IC
2SD1237L
IC/IB=10
Pulses
Ta=120°C
25°C
−40°C
Collector-emitter saturation voltage, VCE(sat) − V
Collector current, IC − A


VBE(sat) - IC
2SB921L
IC/IB=10
Pulses
Ta=−40°C
25°C
120°C
Base-emitter saturation voltage, VBE(sat) − V
Collector current, IC − A


VBE(sat) - IC
2SD1237L
IC/IB=10
Pulses
Ta=−40°C
25°C
120°C
Base-emitter saturation voltage, VBE(sat) − V
Collector current, IC − A


A S O
2SB921L
ICP
IC
1 ms
10 ms
100 ms
DC operation
(Single pulse with regard to 1 to 100 ms)
Collector current, IC − A
Collector-to-emitter voltage, VCE − V


A S O
2SD1237L
ICP
IC
1 ms
10 ms
100 ms
DC operation
(Single pulse with regard to 1 to 100 ms)
Collector current, IC − A
Collector-to-emitter voltage, VCE − V


PC − Tc
2SB921L/2SD1237L
Collector Dissipation, PC − W
Case Temperature, Tc − °C