

T-33-29

2SD1837



2041 NPN Planar Silicon Darlington Transistor

Driver Applications

©2231A

Applications

- Suitable for use in switching of L load (motor drivers, printer hammer drivers, relay drivers)

Features

- High DC current gain
- Large current capacity and wide ASO
- On-chip zener diode of $60 \pm 10V$ between collector and base
- Uniformity in collector to base breakdown voltage due to accurate impurity diffusion process
- Large inductive load handling capability
- Micaless package facilitating mounting

Absolute Maximum Ratings at $T_a=25^\circ C$

Parameter	Symbol	Value	unit
Collector to Base Voltage	V_{CB0}	50*	V
Collector to Emitter Voltage	V_{CEO}	50*	V
Emitter to Base Voltage	V_{EBO}	6	V
Collector Current	I_C	3	A
Peak Collector Current	i_{cp}	5	A
Base Current	I_B	0.5	A
Collector Dissipation	P_C	2.0	W
Junction Temperature	T_J	20	$^\circ C$
Storage Temperature	T_{stg}	-55 to +150	$^\circ C$

$T_c=25^\circ C$

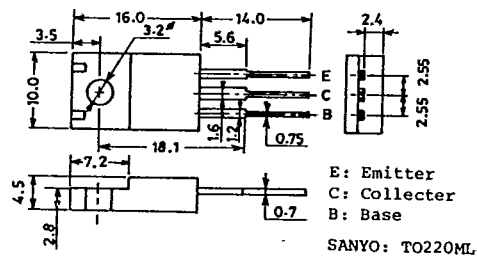
*: On-chip zener diode ($60 \pm 10V$)

Electrical Characteristics at $T_a=25^\circ C$

Parameter	Symbol	Test Conditions	min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB}=40V, I_E=0$			100	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=5V, I_C=0$			3	mA
DC Current Gain	h_{FE}	$V_{CE}=3V, I_C=1.5A$	1000	4000		
Gain-Bandwidth Product	f_T	$V_{CE}=5V, I_C=1.5A$		20		MHz

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Case Outline 2041 (unit:mm)



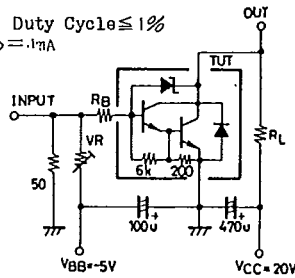
4277TA, TS No. 2231-1/3

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			min	typ	max	unit
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=1.5A, I_B=3mA$		0.9	1.5	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=1.5A, I_B=3mA$			2.0	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=5mA, I_E=0$	50	60	70	V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=50mA, R_{BE}=\infty$	50	60	70	V
Inductive Load	Es/b	$L=100mH, R_{BE}=100ohms$	40			mJ
Handling Capability						
Turn-on Time	t_{on}	See specified Test Circuit.		0.5		us
Storage Time	t_{stg}	$V_{CC}=20V, I_C=2.0A$		4.0		us
Fall Time	t_f	$I_{B1}=-I_{B2}=4mA$		1.5		us

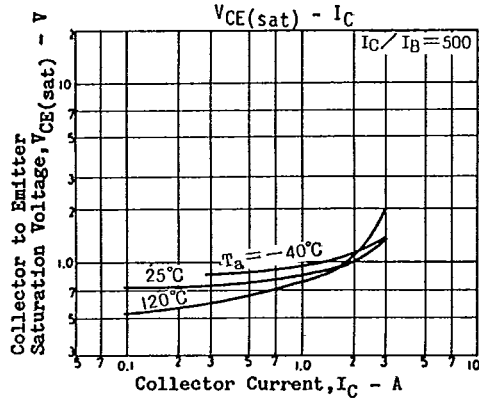
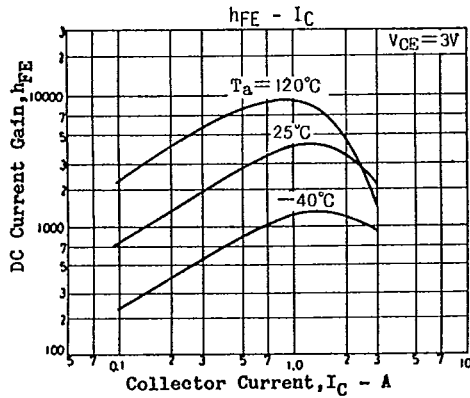
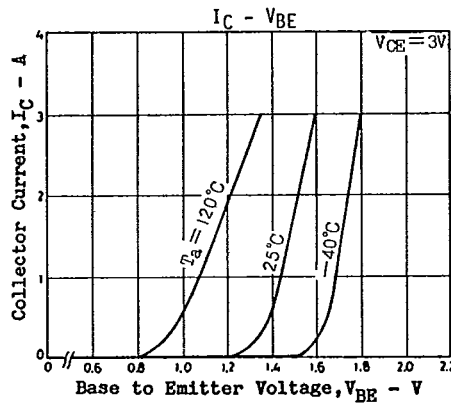
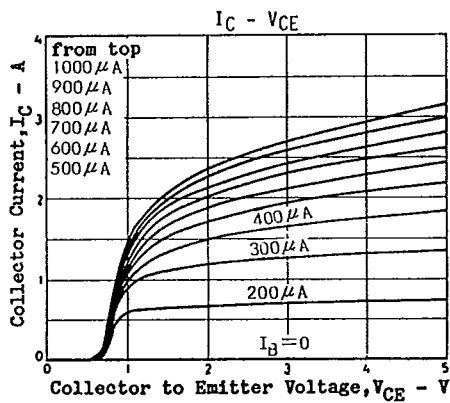
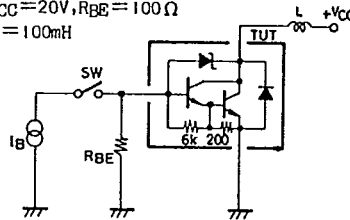
Switching Time Test Circuit

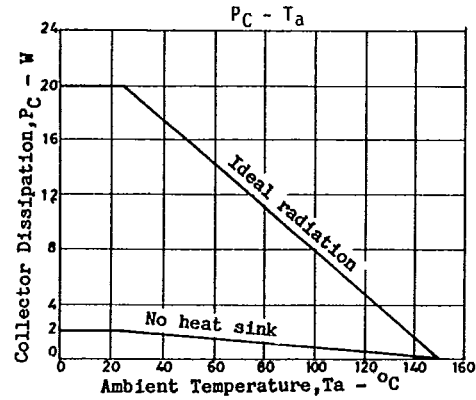
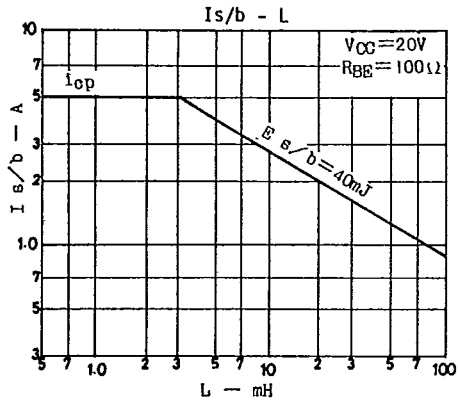
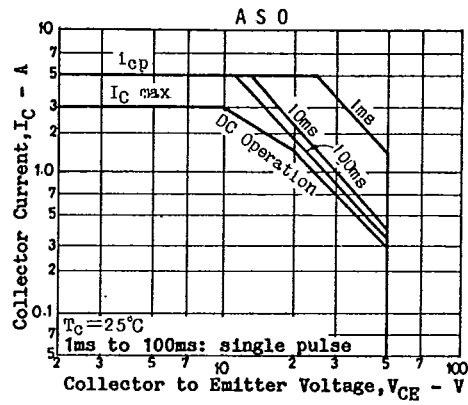
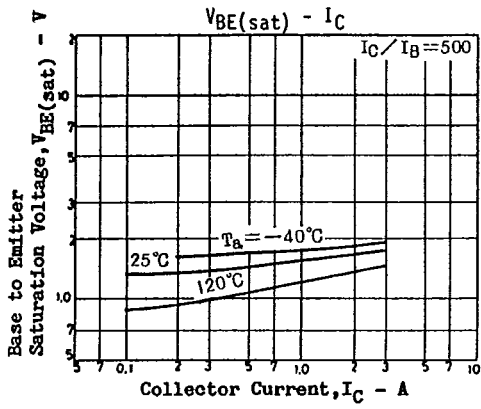
PW = 50 μ s, Duty Cycle \leq 1%
 $I_{B1} = -I_{B2} = 4mA$



Es/b Test Circuit

$V_{CC}=20V, R_{BE}=100\Omega$
 $L=100mH$



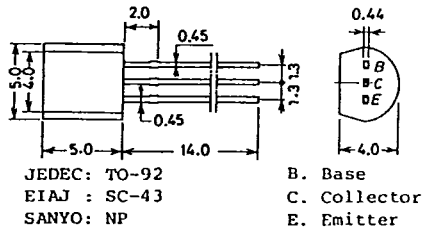


T-91-20

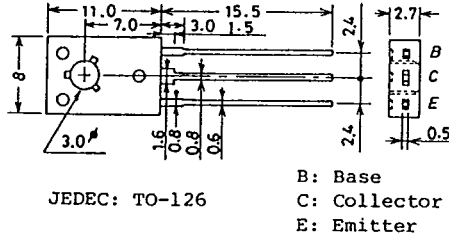
CASE OUTLINES AND ATTACHMENTS

- All of Sanyo Transistor case outlines are illustrated below.
- All dimensions are in mm, and dimensions which are not followed by min. or max. are represented by typical values.
- No marking is indicated.

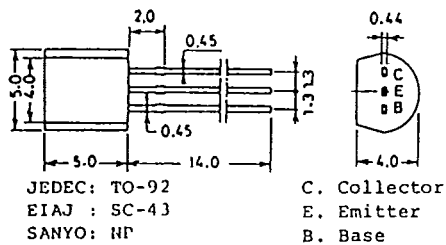
Case Outline-[2003A]
unit:mm



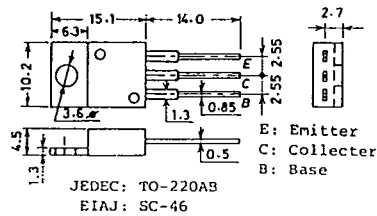
Case Outline-[2009A]
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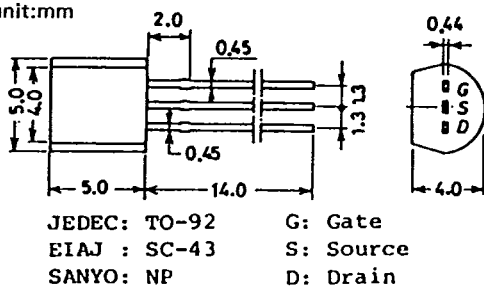
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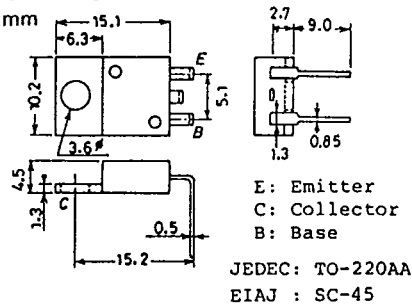
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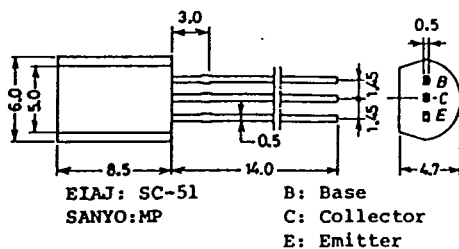
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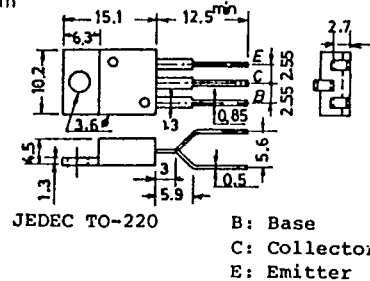
Case Outline-[2012]
unit:mm



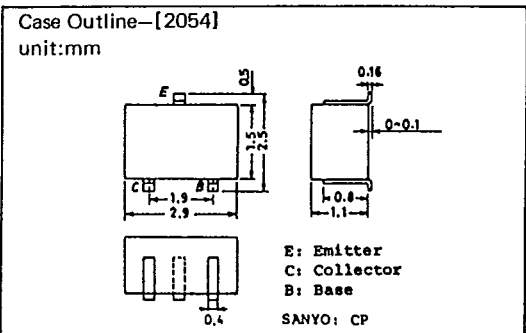
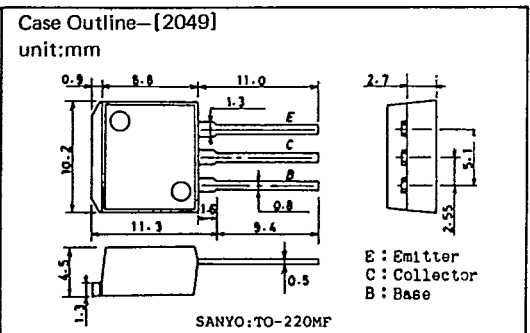
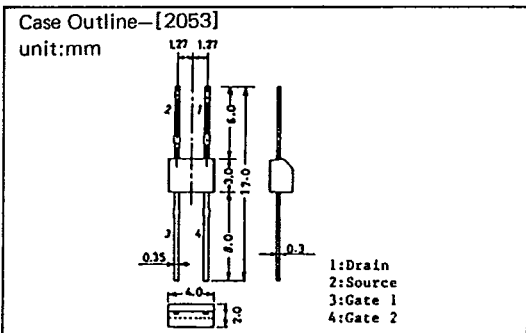
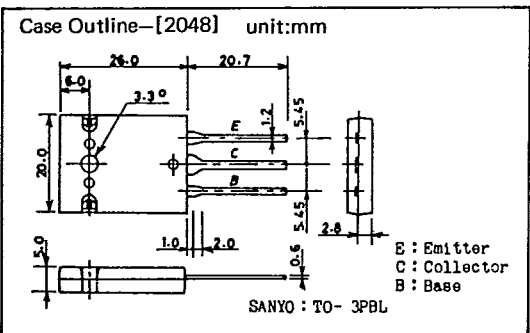
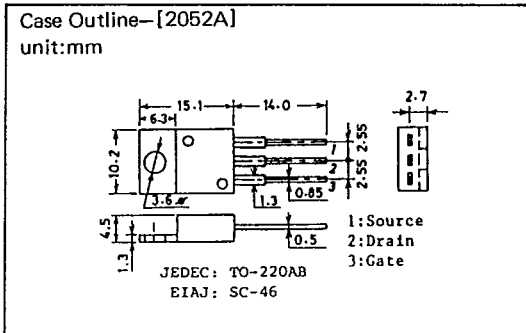
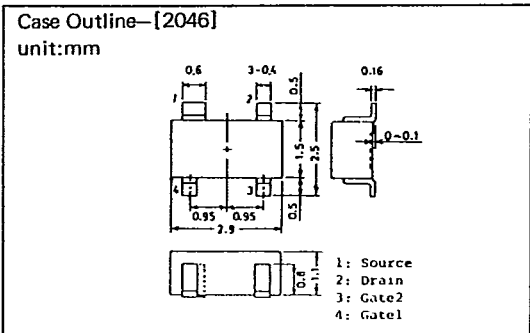
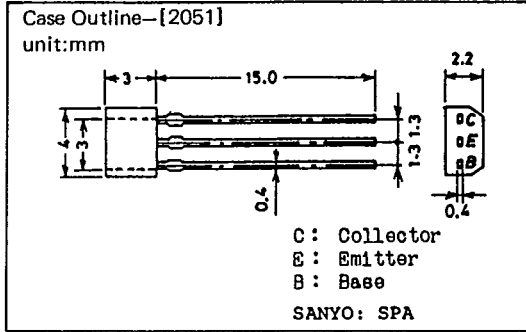
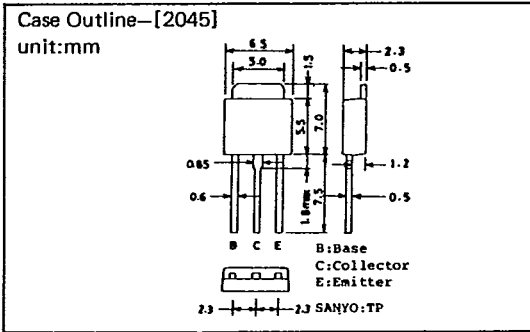
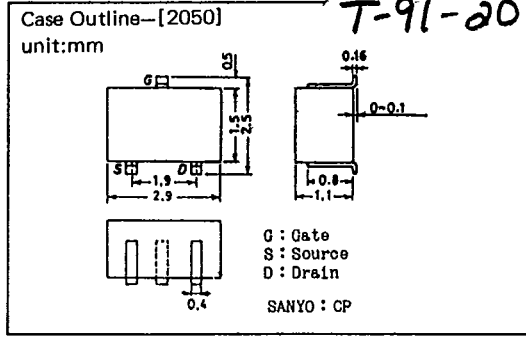
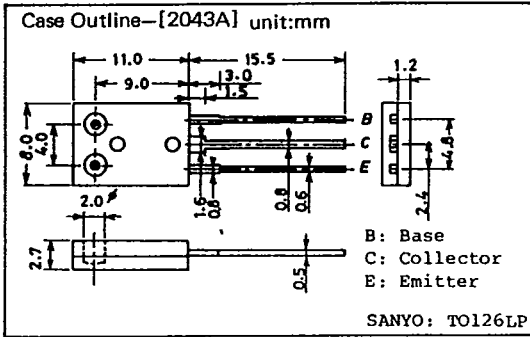
Case Outline-[2006A]
unit:mm



Case Outline-[2013]
unit:mm



T-91-20



T-91-20

