

<b>SANYO</b>	No.2272A	2 S C 4 0 0 6
	NPN Planar Type Silicon Darlington Transistor	
DRIVER APPLICATIONS		

**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  $50 \pm 8V$  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  $T_a=25^\circ C$**

Collector to Base Voltage	$V_{CBO}$	42*	V	unit
Collector to Emitter Voltage	$V_{CEO}$	42*	V	
Emitter to Base Voltage	$V_{EBO}$	6	V	
Collector Current	$I_C$	3	A	
Peak Collector Current	$i_{cp}$	6	A	
Base Current	$I_B$	0.6	A	
Collector Dissipation	$P_C$	2.0	W	
		$T_c=25^\circ C$	20	W
Junction Temperature	$T_j$	150	$^\circ C$	
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ C$	

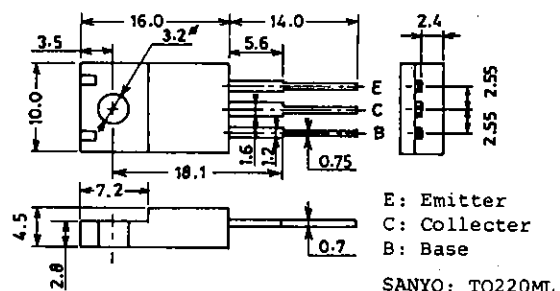
\*: On-chip Zener diode of  $50 \pm 8V$

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

			min	typ	max	unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=30V, I_E=0$			10	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=5V, I_C=0$			2	mA
DC Current Gain	$h_{FE}$	$V_{CE}=5V, I_C=1.5A$	2000	4000		
Gain-Bandwidth Product	$f_T$	$V_{CE}=5V, I_C=1.5A$		180		MHz
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=1.5A, I_B=6mA$		1.0	1.5	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=1.5A, I_B=6mA$			2.0	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=0.1mA, I_E=0$	42	50	58	V

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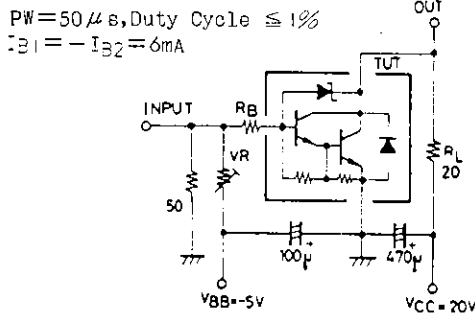
**Package Dimensions 2041**  
(unit: mm)



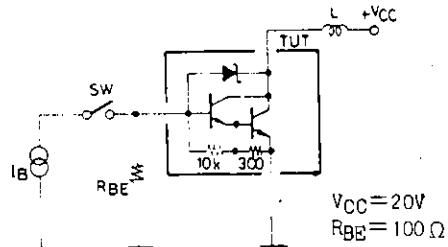
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			min	typ	max	unit
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	42	50	58	V
Inductive Load	Es/b	$L=100mH, R_{BE}=100ohms$	30			mJ
Handling Capability						
Turn-on Time	$t_{on}$	See specified Test Circuit. $V_{CC}=20V, I_C=1.5A$ $I_{B1}=-I_{B2}=6mA$		0.2		$\mu s$
Storage Time	$t_{stg}$			3.0		$\mu s$
Fall Time	$t_f$			0.7		$\mu s$

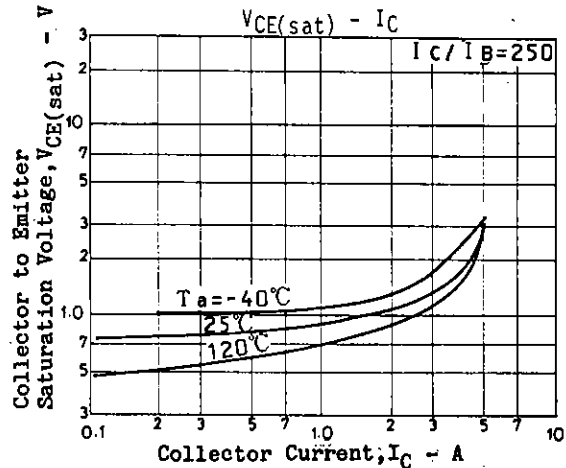
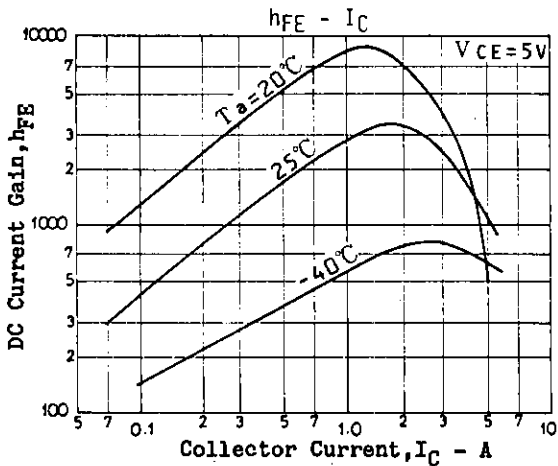
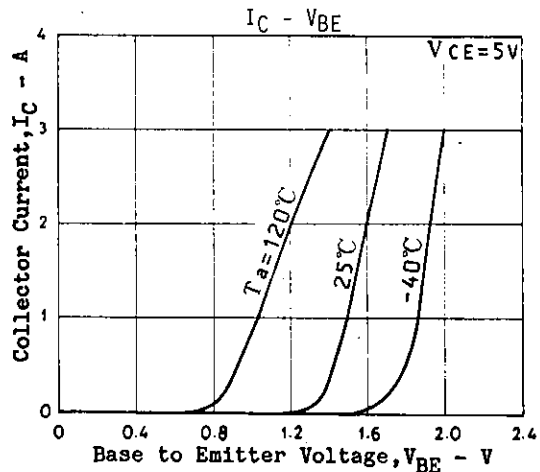
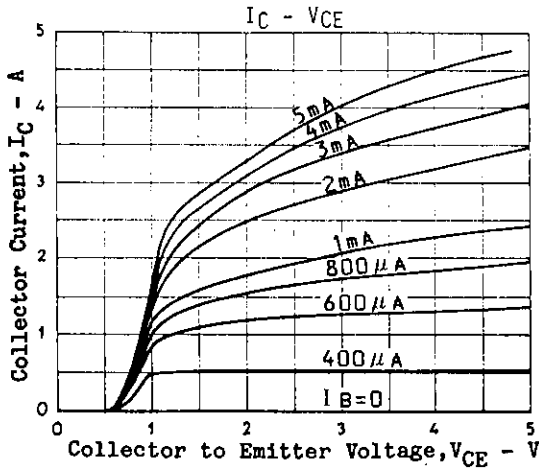
Switching Time Test Circuit

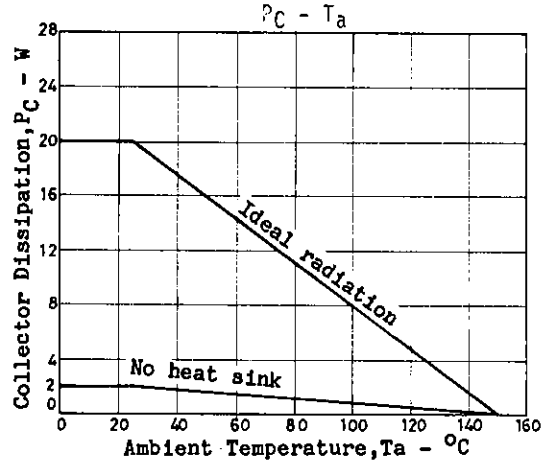
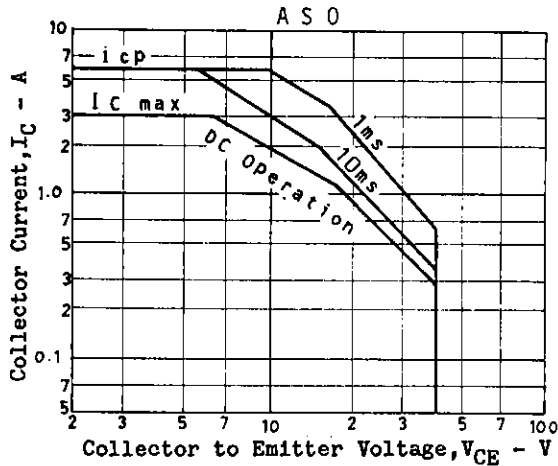
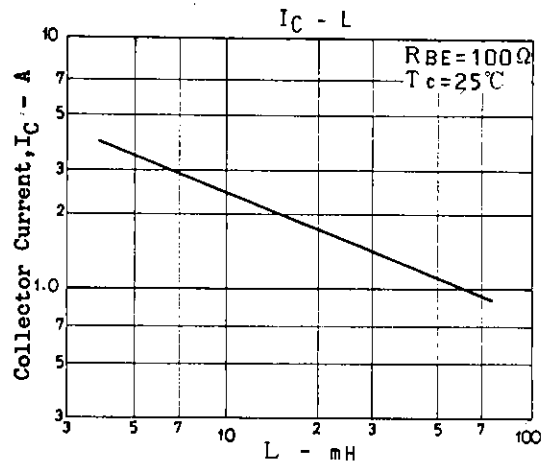
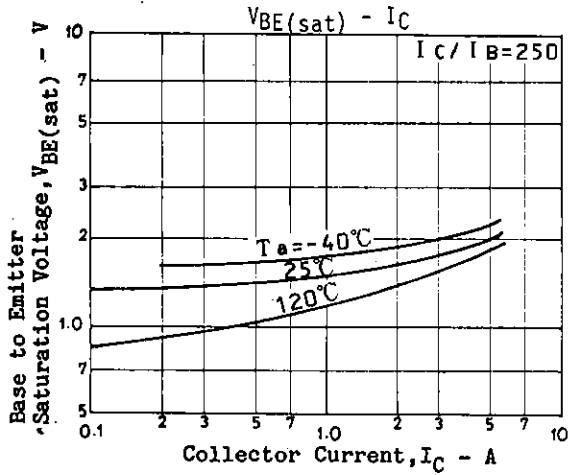


Es/b Test Circuit



Unit (resistance:  $\Omega$ , capacitance: F)





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