2SC3976

Silicon NPN triple diffusion planar type

For high breakdown voltage high-speed switching

Features

- High-speed switching
- ullet High collector to base voltage V_{CBO}
- Wide area of safe operation (ASO)
- Satisfactory linearity of foward current transfer ratio h_{FE}

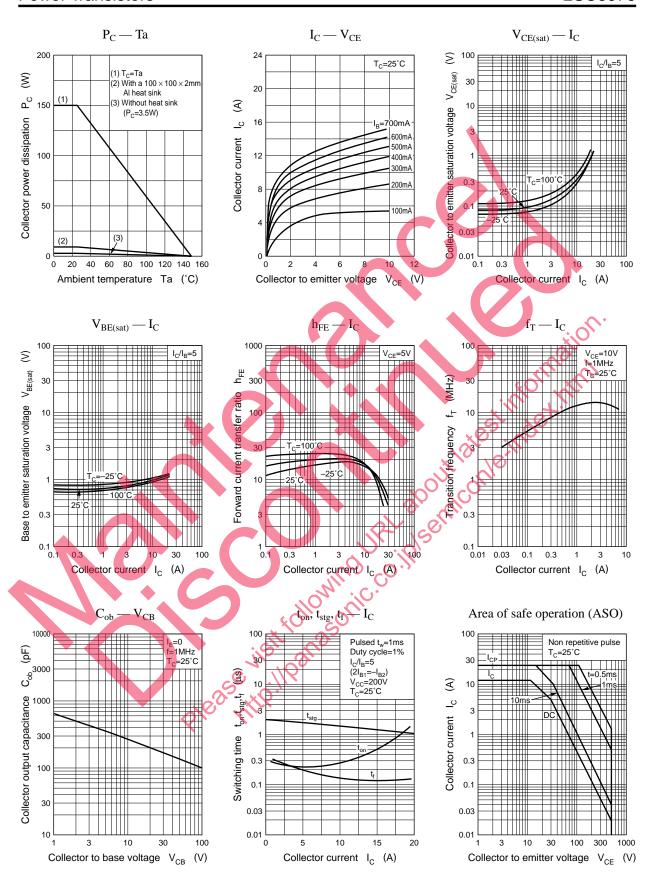
Absolute Maximum Ratings (T_C=25°C)

Parameter	Symbol	Ratings	Unit	
Collector to base voltage	V _{CBO}	800	V	
Callector to amitter valtage	V _{CES}	800	V	
Collector to emitter voltage	V _{CEO}	500	V	
Emitter to base voltage V _{EBO}		8	V	
Peak collector current I _{CP}		25	A	
Collector current	I_{C}	12	A	
Base current	I_{B}	6	A	
Collector power T _C =25°C		150	***	
dissipation Ta=25°C	Pc	3.5	W	
Junction temperature T _j		150	°C	
Storage temperature T _{stg}		-55 to +150	°C	
			20)	

Electrical Characteristics (T_C=25°C)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 800V, I_{E} = 0$			100	μА
Emitter cutoff current	I _{EBO}	$V_{EB} = 5V, I_C = 0$			100	μΑ
Collector to emitter voltage	V _{CEO}	$I_{\rm O} = 10 \rm mA$, $I_{\rm B} = 0$	500			V
Forward current transfer ratio	h _{EE} i	$V_{\rm CE} = 5 \text{V}, I_{\rm C} = 0.1 \text{A}$	15			
	h _{FE2}	$V_{CE} = 5V$, $I_C = 7A$	8			
Collector to emitter saturation voltage	V _{CE(sat)}	$I_C = 7A, I_B = 1.4A$			1.0	V
Base to emitter saturation voltage	V _{BE(sat)}	$I_C = 7A, I_B = 1.4A$			1.5	V
Transition frequency	f_T	$V_{CE} = 10V, I_{C} = 1A, f = 1MHz$		15		MHz
Turn-on time	t _{on}	1 _ 7			1.0	μs
Storage time	t _{stg}	$I_C = 7A$, $I_{B1} = 1.4A$, $I_{B2} = -2.8A$,			3.0	μs
Fall time	t_f	$V_{CC} = 200V$			0.3	μs

Power Transistors 2SC3976



2 Panasonic

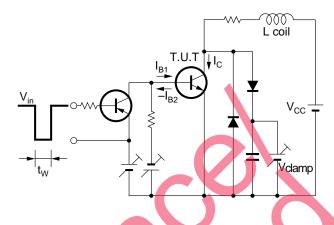
Power Transistors 2SC3976

Area of safe operation, reverse bias ASO

$\begin{array}{l} {\sf L_{coil}}{=}30\mu{\sf H} \\ {\sf I_C/I_B}{=}5 \\ ({\sf I_{B1}}{=}{-}{\sf I_{B2}}) \\ {\sf T_C}{\leq}100^{\circ}{\sf C} \end{array}$ 14 3 12 10 Collector current 100 200 300 400 500 600 700 800

Collector to emitter voltage V_{CE} (V)

Reverse bias ASO measuring circuit





Panasonic 3

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