



Switching Regulator Applications

Preliminary

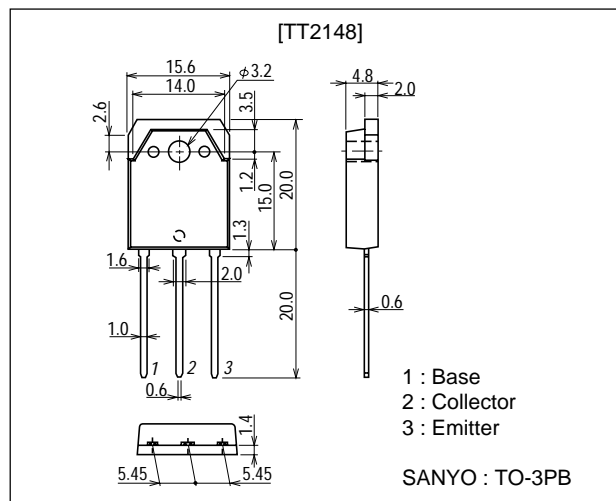
Features

- High breakdown voltage and high reliability.
- Fast switching speed.
- Wide ASO.
- Adoption of MBIT process.

Package Dimensions

unit : mm

2022A



Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		500	V
Collector-to-Emitter Voltage	V _{CEO}		400	V
Emitter-to-Base Voltage	V _{EB0}		7	V
Collector Current	I _C		12	A
Collector Current (Pulse)	I _{CP}	PW≤300μs, Duty Cycle≤10%	20	A
Base Current	I _B		3.5	A
Collector Dissipation	P _C		2.5	W
		T _c =25°C	80	W
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I _{CB0}	V _{CB} =400V, I _E =0			10	μA
Emitter Cutoff Current	I _{EB0}	V _{EB} =5V, I _C =0			10	μA

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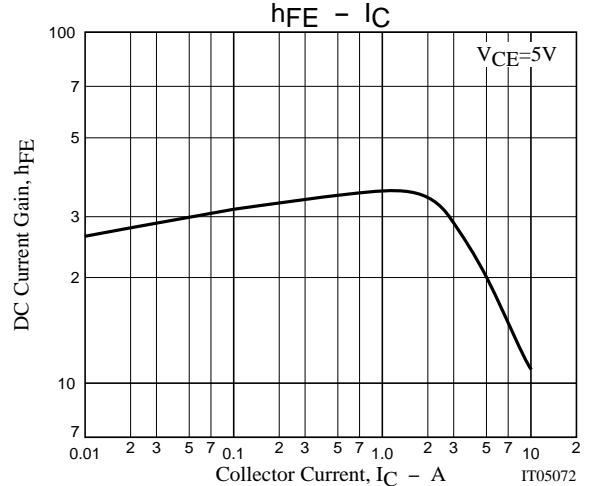
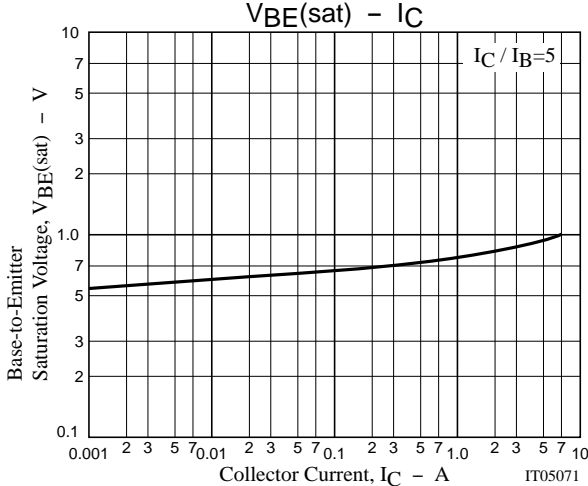
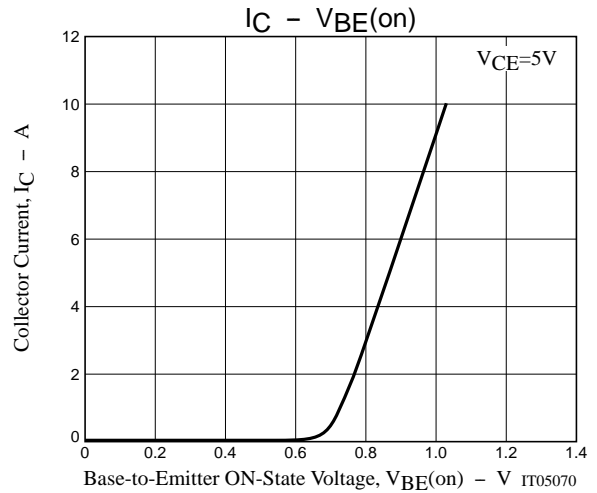
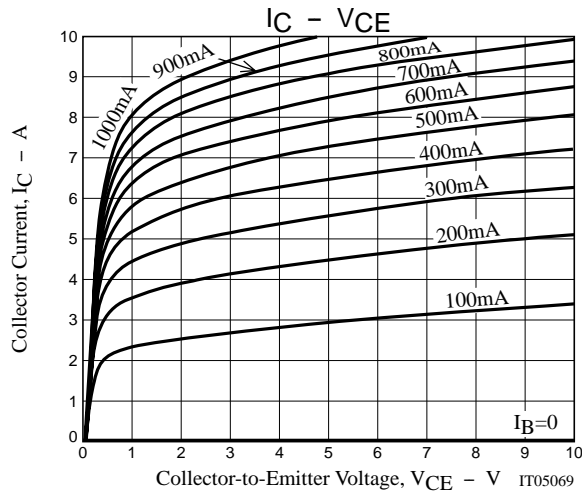
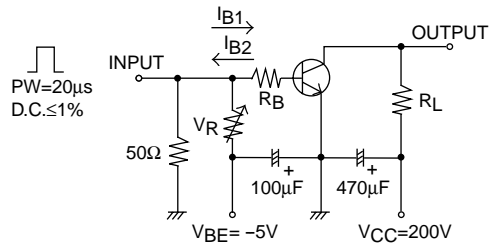
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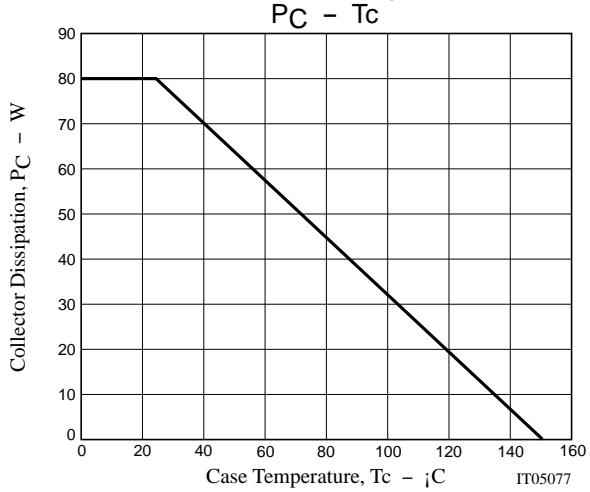
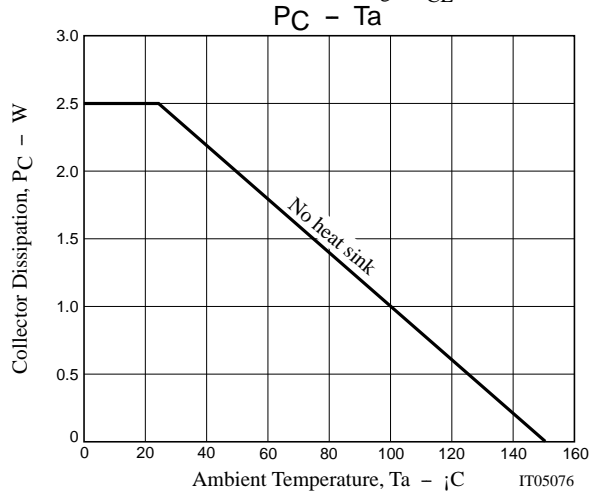
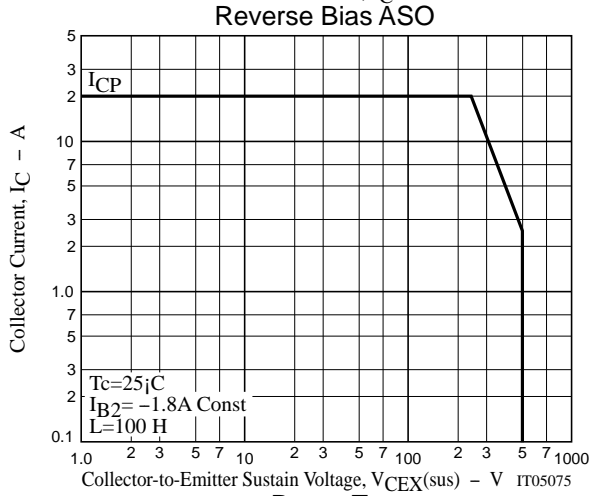
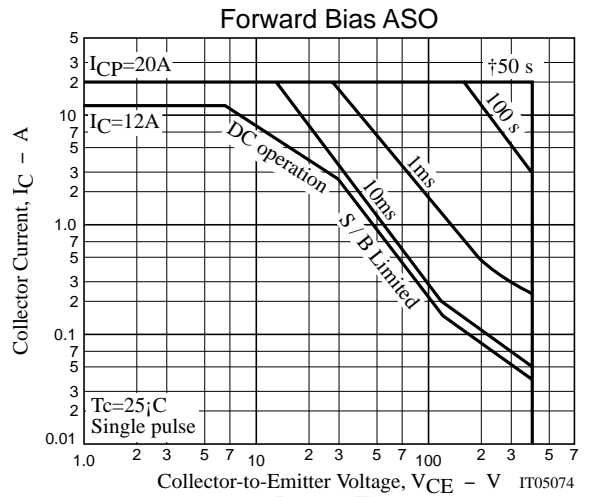
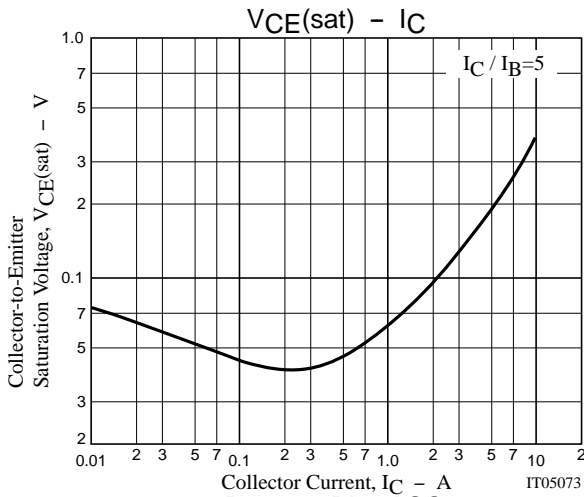
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
DC Current Gain	h_{FE1}	$V_{CE}=5V, I_C=1.2A$	20*		50*	
	h_{FE2}	$V_{CE}=5V, I_C=6A$	10			
	h_{FE3}	$V_{CE}=5V, I_C=1mA$	10			
Gain-Bandwidth Product	f_T	$V_{CE}=10V, I_C=1.2A$		20		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$		120		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=6A, I_B=1.2A$			0.8	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=6A, I_B=1.2A$			1.5	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0$	500			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=5mA, R_{BE}=\infty$	400			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0$	7			V
Turn-ON Time	t_{on}	$I_C=7A, I_{B1}=1.4A, I_{B2}=-2.8A, R_L=28.6\Omega, V_{CC}=200V$			0.5	μs
Storage Time	t_{stg}	$I_C=7A, I_{B1}=1.4A, I_{B2}=-2.8A, R_L=28.6\Omega, V_{CC}=200V$			2.5	μs
Fall Time	t_f	$I_C=7A, I_{B1}=1.4A, I_{B2}=-2.8A, R_L=28.6\Omega, V_{CC}=200V$			0.3	μs

* : The h_{FE1} of the TT2148 is classified as follows.

Rank	M	N
h_{FE}	20 to 40	30 to 50

Switching Time Test Circuit





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