



GK001T — N-Channel GTBT

Switching Regulator Applications

Features

- Adoption of process GTBT (Grounded-Trench-MOS assisted Bipolar-mode Field Effect Transistor).
- High breakdown voltage and high reliability.
- High speed switching.
- Wide ASO.
- Low saturation voltage, low On resistance : $R_{CE(sat)}=280m\Omega$ (at 1A).
- High h_{FE} (typ : 1000).

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		600	V
Collector-to-Emitter Voltage	V_{CES}		600	V
Emitter-to-Base Voltage	V_{EBO}		7	V
Collector Current	I_C		2	A
Collector Current (Pulse)	I_{CP}	$PW \leq 300\mu s$, Duty cycle $\leq 10\%$	4	A
Base Current	I_B		1	A
Collector Dissipation	P_C		0.8	W
		$T_c=25^\circ\text{C}$	22	W
Junction Temperature	T_J		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=500V$, $I_E=0$			10	μA
Collector Cutoff Current	I_{CES}	$V_{CE}=500V$, $R_{BE}=0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=6V$, $I_C=0$			10	μA
DC Current Gain	h_{FE1}	$V_{CE}=5V$, $I_C=50mA$	500		1500	
	h_{FE2}	$V_{CE}=5V$, $I_C=400mA$	35			
	h_{FE3}	$V_{CE}=5V$, $I_C=1.2A$	12			
Output Capacitance	C_{ob}	$V_{CB}=10V$, $f=1MHz$		7.2		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=1A$, $I_B=0.2A$		280	560	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1A$, $I_B=0.2A$		1.1	1.5	V

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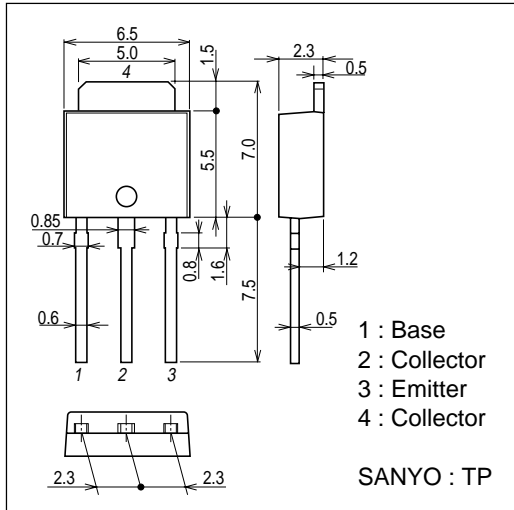
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=100\mu A, I_E=0$	600			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C=100\mu A, R_{BE}=0$	600			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	200			V
Turn-ON Time	t_{on}	$I_C=1A, I_{B1}=0.1A, I_{B2}=-0.45A, R_L=200\Omega$		200		ns
Storage Time	t_{stg}	$I_C=1A, I_{B1}=0.1A, I_{B2}=-0.45A, R_L=200\Omega$		700		ns
Fall Time	t_f	$I_C=1A, I_{B1}=0.1A, I_{B2}=-0.45A, R_L=200\Omega$		70		ns

Package Dimensions

unit : mm

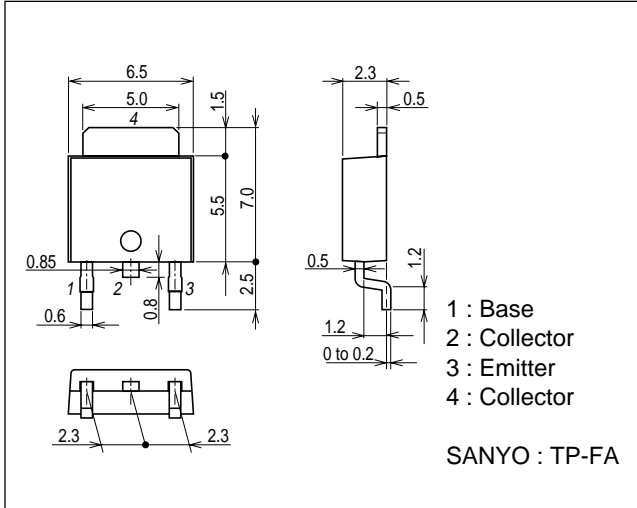
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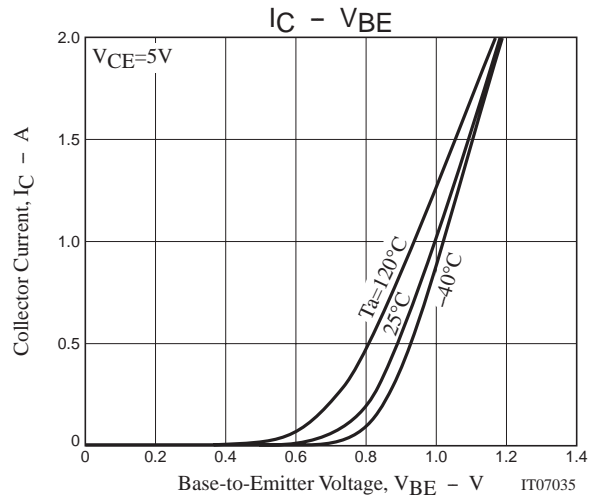
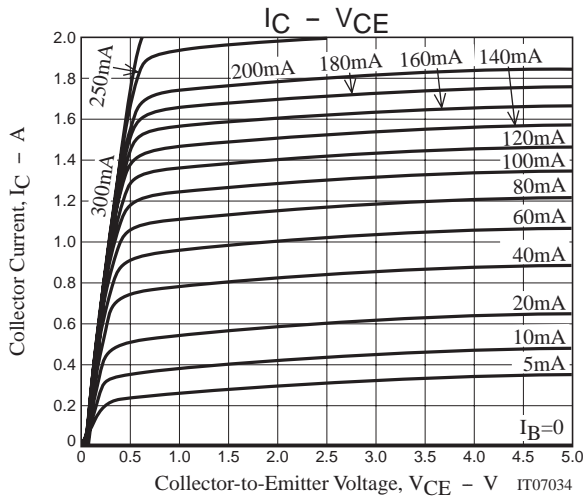
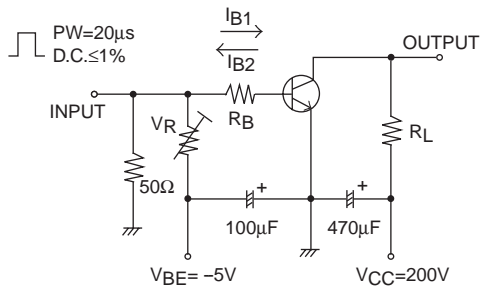
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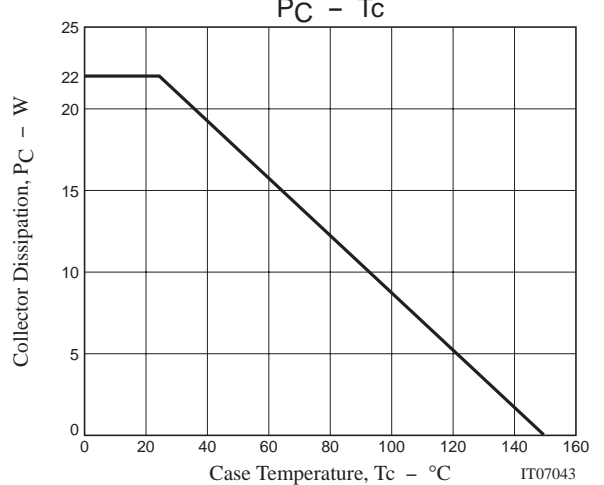
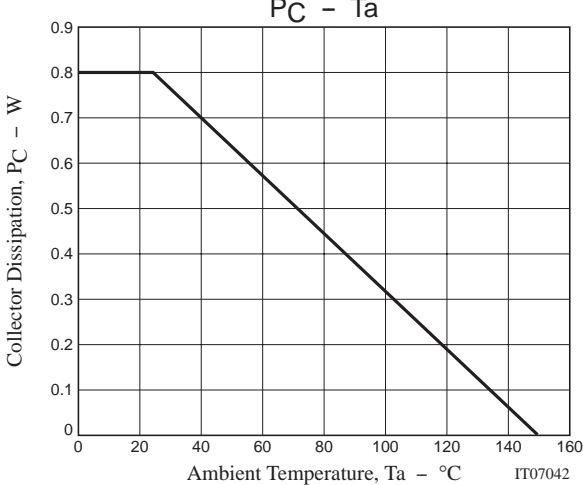
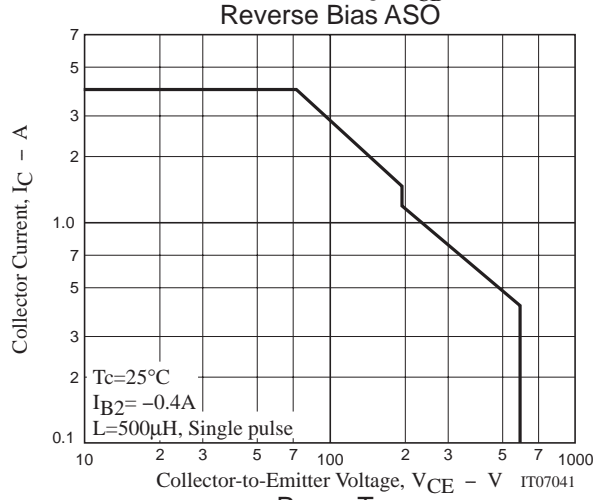
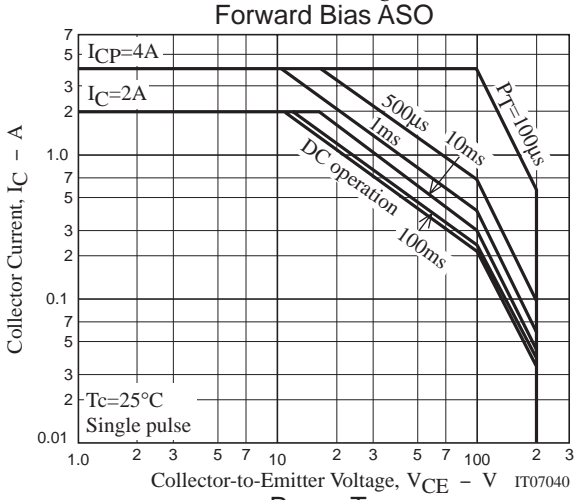
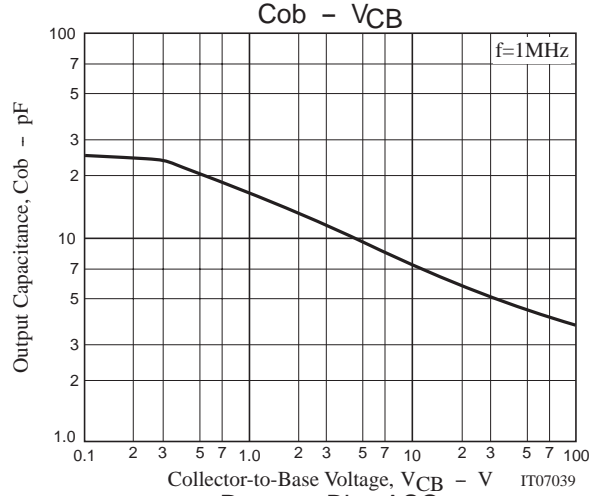
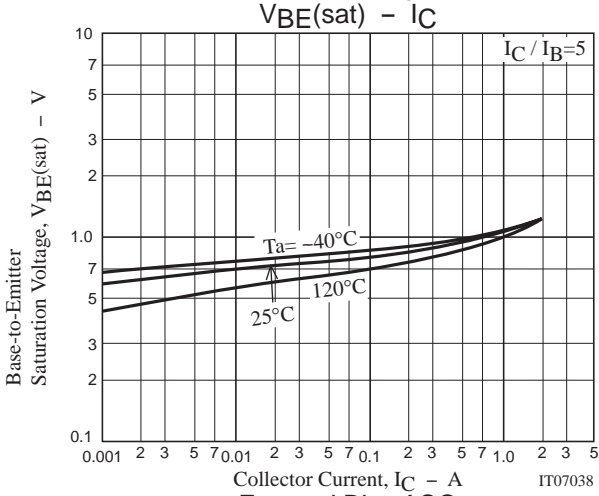
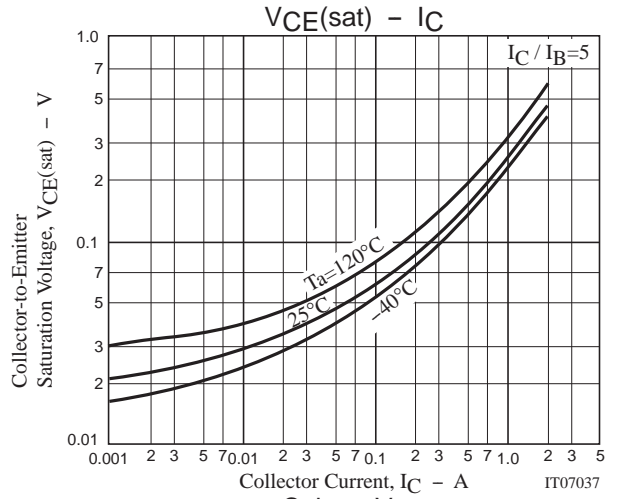
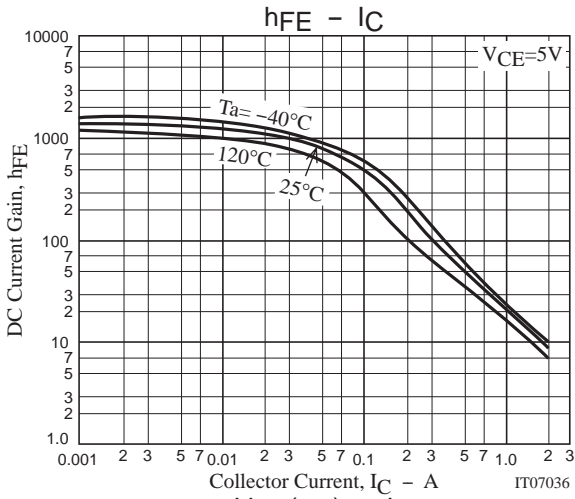
unit : mm

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Switching Time Test Circuit





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