



Switching Regulator Applications

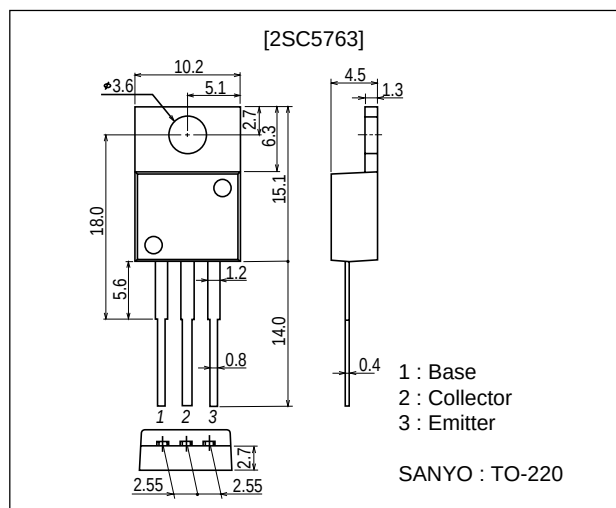
Features

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

Package Dimensions

unit : mm

2010C



Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		700	V
Collector-to-Emitter Voltage	V_{CEO}		400	V
Emitter-to-Base Voltage	V_{EBO}		8	V
Collector Current	I_C		7	A
Collector Current (Pulse)	I_{CP}	$PW \leq 300\mu\text{s}$, Duty cycle $\leq 10\%$	14	A
Collector Dissipation	P_C		1.75	W
		$T_c=25^\circ\text{C}$	55	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}	$V_{CB}=400\text{V}$, $I_E=0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=5\text{V}$, $I_C=0$			10	μA

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* : The h_{FE1} of the 2SC5763 is classified as follows.

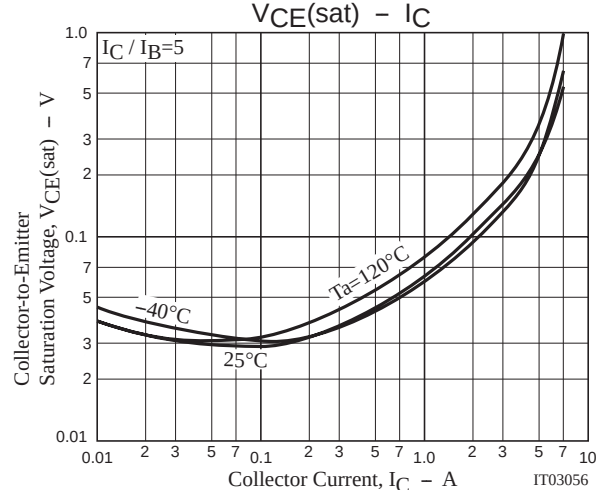
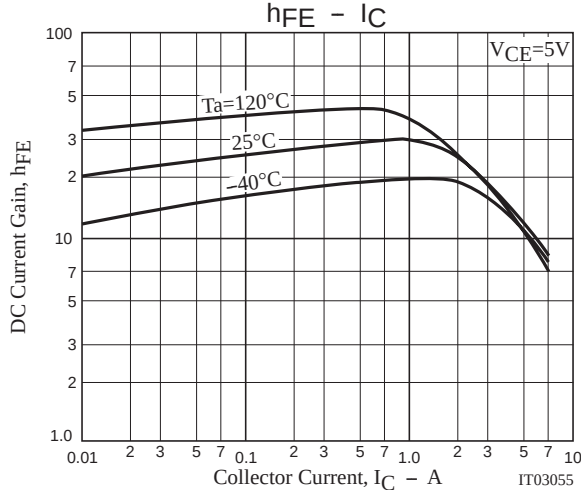
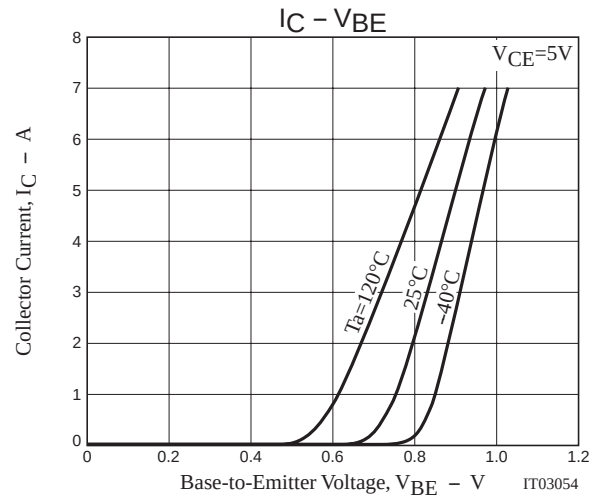
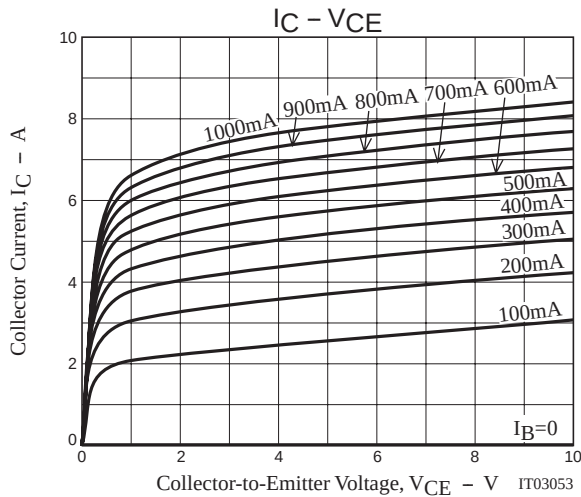
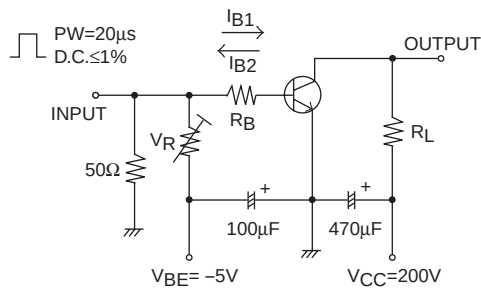
Rank	M	N
h_{FE1}	20 to 40	30 to 50

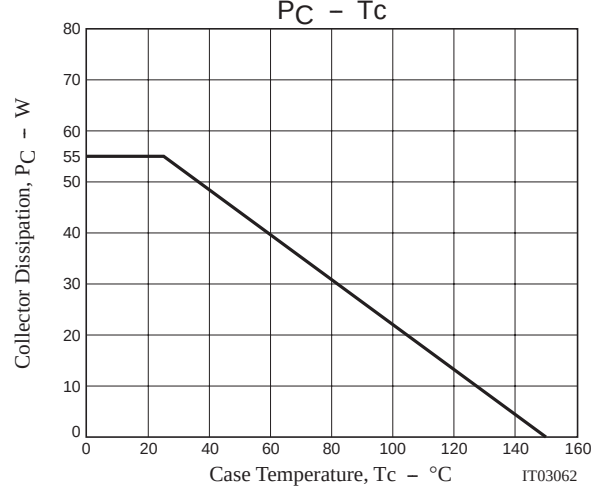
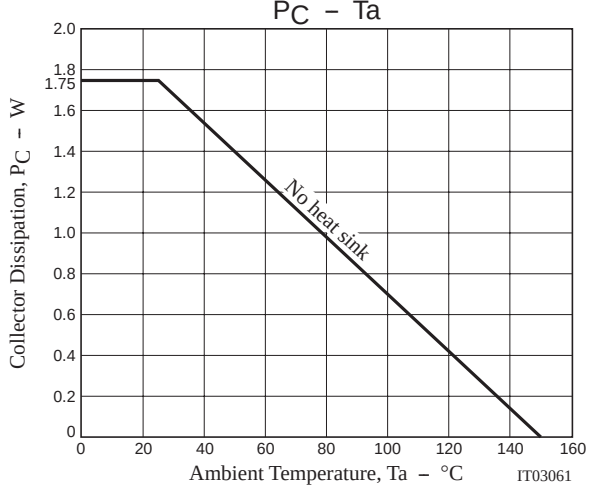
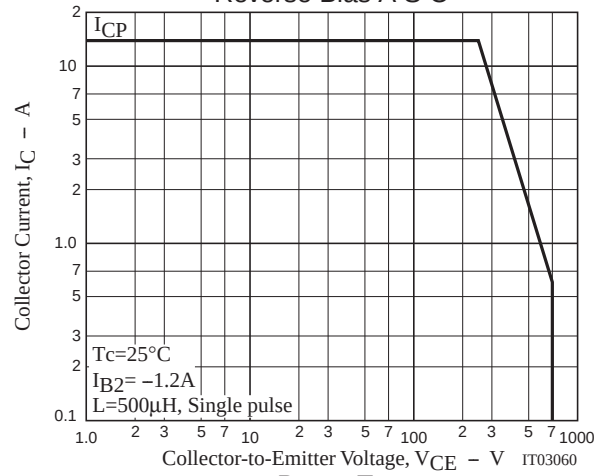
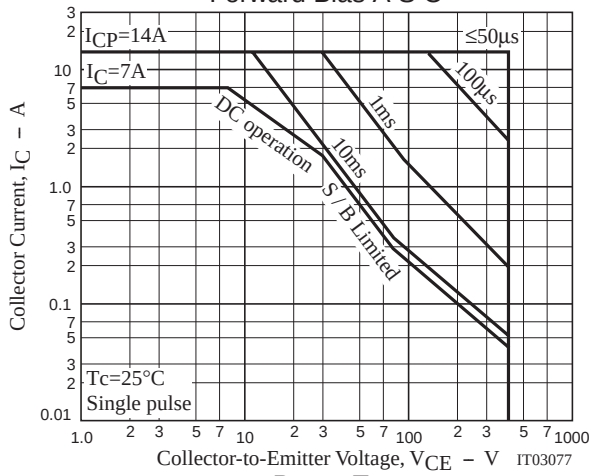
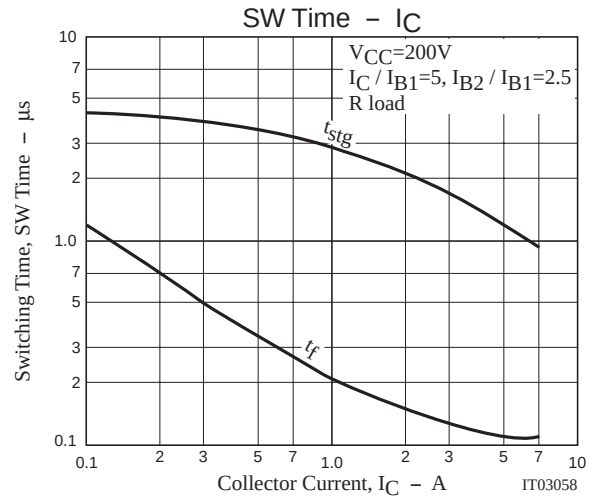
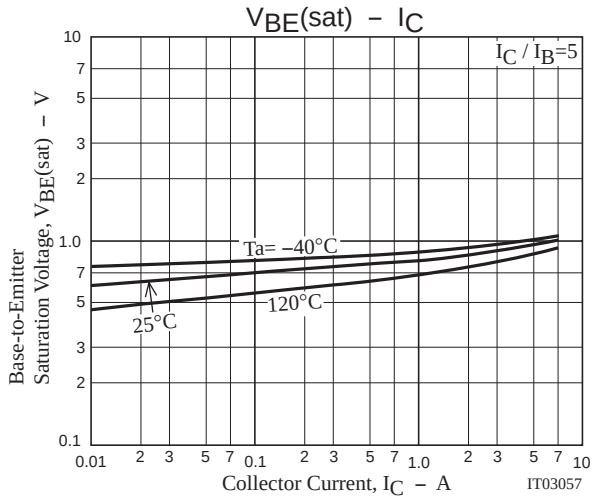
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
DC Current Gain	h_{FE1}	$V_{CE}=5V, I_C=0.8A$	20*		50*	
	h_{FE2}	$V_{CE}=5V, I_C=4A$	10			
	h_{FE3}	$V_{CE}=5V, I_C=1mA$	10			
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=4A, I_B=0.8A$			0.8	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=4A, I_B=0.8A$			1.5	V
Gain-Bandwidth Product	f_T	$V_{CE}=10V, I_C=0.8A$		17		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$		80		pF
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0$	700			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=5mA, R_{BE}=\infty$	400			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0$	8			V
Turn-On Time	t_{on}	$I_C=5A, I_{B1}=1A, I_{B2}=-2A, R_L=40\Omega, V_{CC}=200V$			0.5	μs
Storage Time	t_{stg}	$I_C=5A, I_{B1}=1A, I_{B2}=-2A, R_L=40\Omega, V_{CC}=200V$			2.5	μs
Fall Time	t_f	$I_C=5A, I_{B1}=1A, I_{B2}=-2A, R_L=40\Omega, V_{CC}=200V$			0.25	μs

Switching Time Test Circuit





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