

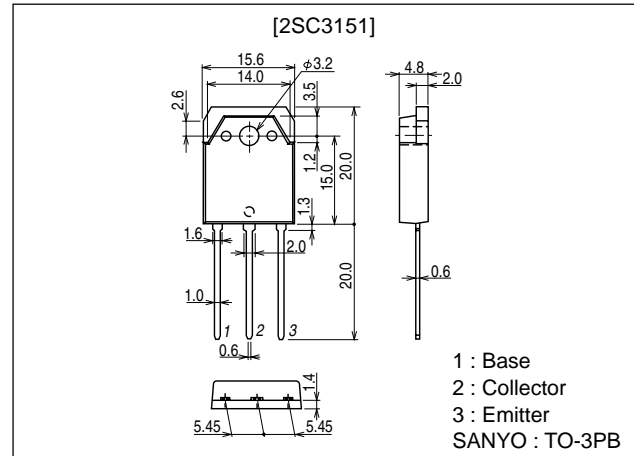
**2SC3151****800V/1.5A Switching Regulator Applications****Features**

- High breakdown voltage ( $V_{CBO} \geq 900V$ ).
- High-speed switching.
- Wide ASO.

**Package Dimensions**

unit:mm

2022A

**Specifications****Absolute Maximum Ratings** at  $T_a = 25^\circ C$ 

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		900	V
Collector-to-Emitter Voltage	$V_{CEO}$		800	V
Emitter-to-Base Voltage	$V_{EBO}$		7	V
Collector Current	$I_C$		1.5	A
Collector Current (Pulse)	$I_{CP}$	$PW \leq 300\mu s$ , Duty Cycle $\leq 10\%$	5	A
Base Current	$I_B$		0.8	A
Collector Dissipation	$P_C$	$T_c = 25^\circ C$	60	W
Junction Temperature	$T_J$		150	$^\circ C$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ C$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 800V$ , $I_E = 0$			10	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5V$ , $I_C = 0$			10	$\mu A$
DC Current Gain	$h_{FE1}$	$V_{CE} = 5V$ , $I_C = 0.1A$	10*		40*	
	$h_{FE2}$	$V_{CE} = 5V$ , $I_C = 0.5A$	8			

Continued on next page.

\* : The  $h_{FE1}$  of the 2SC3151 is classified as follows. When specifying the  $h_{FE1}$  rank, specify two ranks or more in principle.

Rank	K	L	M
$h_{FE}$	10 to 20	15 to 30	20 to 40

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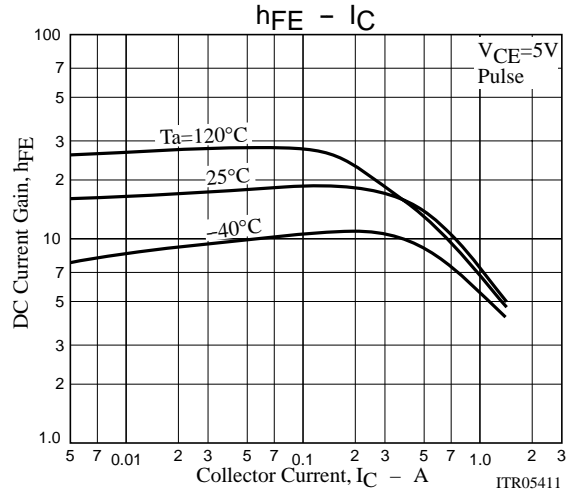
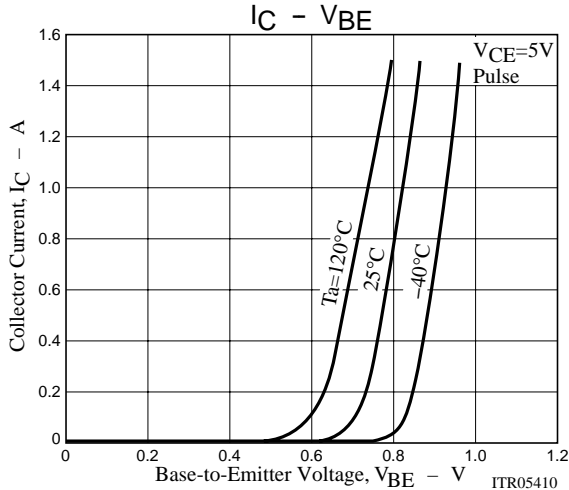
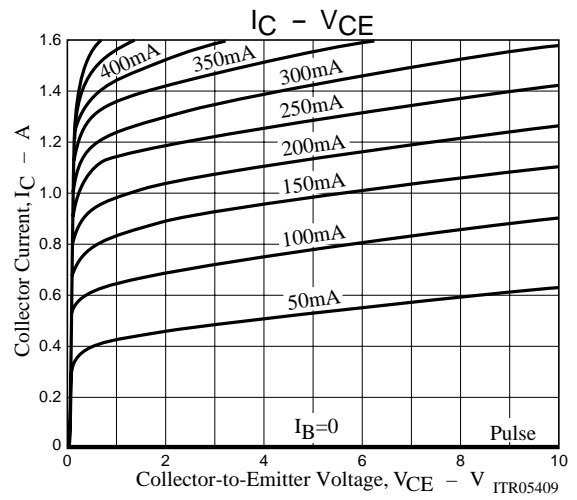
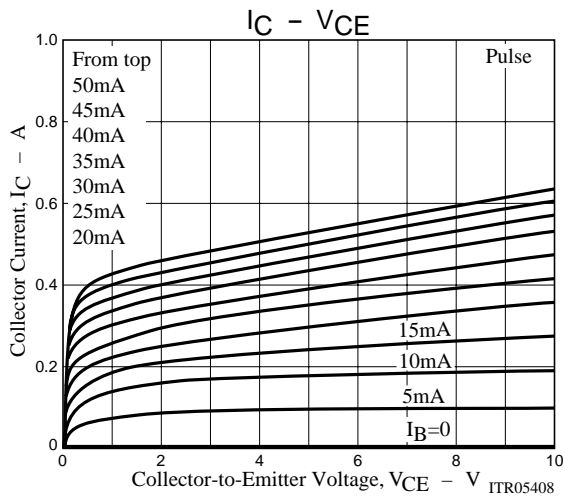
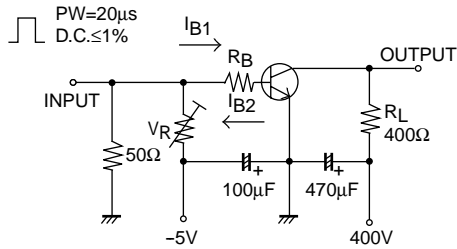
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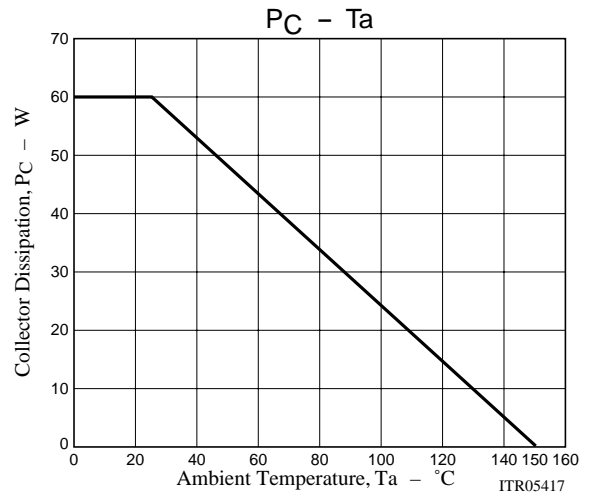
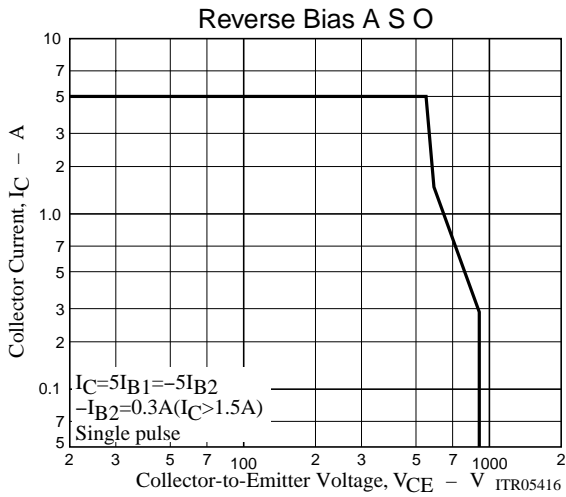
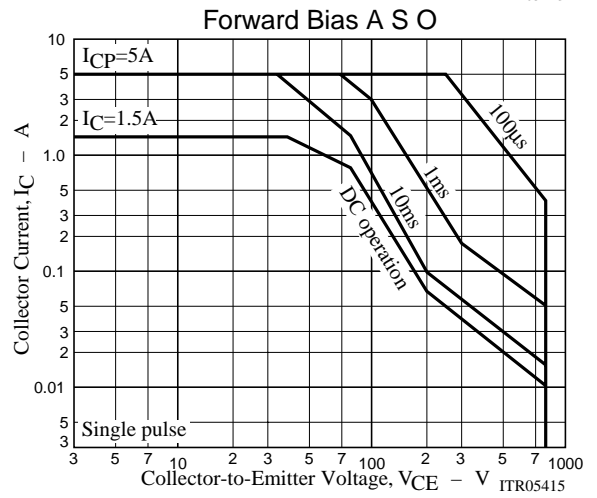
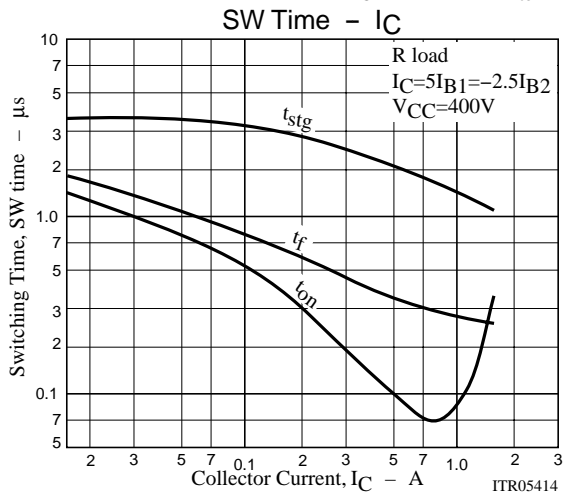
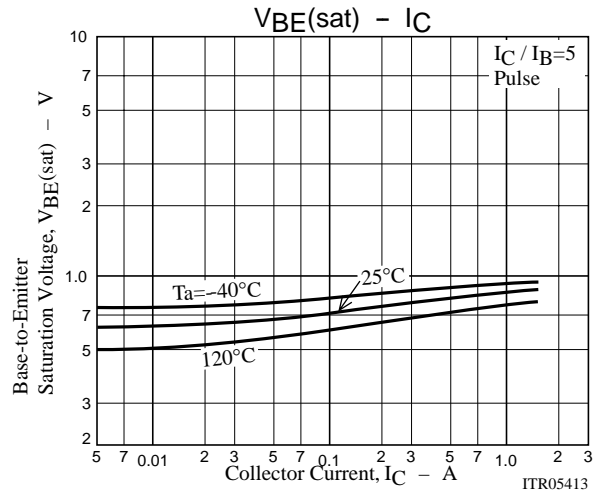
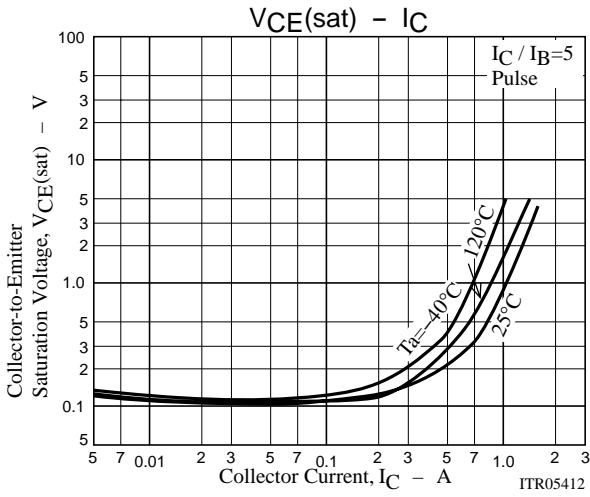
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	$f_T$	$V_{CE}=10V, I_C=0.1A$		15		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10V, f=1MHz$		30		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=0.75A, I_B=0.15A$			2.0	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=0.75A, I_B=0.15A$			1.5	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0$	900			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=5mA, R_{BE}=\infty$	800			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0$	7			V
Collector-to-Emitter Sustain Voltage	$V_{CEO(sus)}$	$I_C=1.5A, L=1mH, I_B=0.5A$	800			V
Collector-to-Emitter Sustain Voltage	$V_{CEX(sus)1}$	$I_C=0.5A, I_{B1}=0.1A, I_{B2}=-0.1A, L=5mH, \text{clamped}$	800			V
	$V_{CEX(sus)2}$	$I_C=0.25A, I_{B1}=0.05A, I_{B2}=-0.05A, L=10mH, \text{clamped}$	900			V
Turn-ON Time	$t_{on}$	$I_C=1A, I_{B1}=0.2A, I_{B2}=-0.4A, R_L=400\Omega, V_{CC}=400V$			1.0	$\mu s$
Storage Time	$t_{stg}$	$I_C=1A, I_{B1}=0.2A, I_{B2}=-0.4A, R_L=400\Omega, V_{CC}=400V$			3.0	$\mu s$
Fall Time	$t_f$	$I_C=1A, I_{B1}=0.2A, I_{B2}=-0.4A, R_L=400\Omega, V_{CC}=400V$			0.7	$\mu s$

## Switching Time Test Circuit



# 2SC3151



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