



800V/3A Switching Regulator Applications

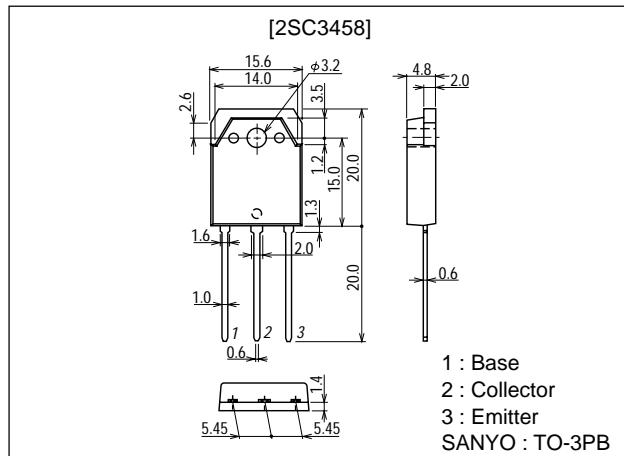
Features

- High breakdown voltage and high reliability.
- High-speed switching (t_f : 0.1μs typ).
- Wide ASO.
- Adoption of MBIT process.

Package Dimensions

unit:mm

2022A



Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		1100	V
Collector-to-Emitter Voltage	V_{CEO}		800	V
Emitter-to-Base Voltage	V_{EBO}		7	V
Collector Current	I_C		3	A
Collector Current (Pulse)	I_{CP}	$PW \leq 300\mu s$, Duty Cycle $\leq 10\%$	10	A
Base Current	I_B		1.5	A
Collector Dissipation	P_C	$T_c = 25^\circ C$	80	W
Junction Temperature	T_j		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=800V, I_E=0$			10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=-5V, I_C=0$			10	μA
DC Current Gain	h_{FE1}	$V_{CE}=5V, I_C=0.2A$		10*		40*
	h_{FE2}	$V_{CE}=5V, I_C=1A$	8			

Continued on next page.

* : The h_{FE1} of the 2SC3458 is classified as follows. When specifying the h_{FE1} rank, specify two ranks or more in principle.

Rank	K	L	M
h _{EE}	10 to 20	15 to 30	20 to 40

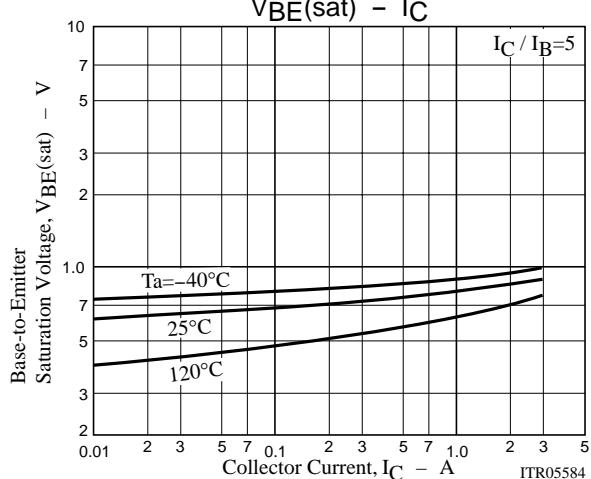
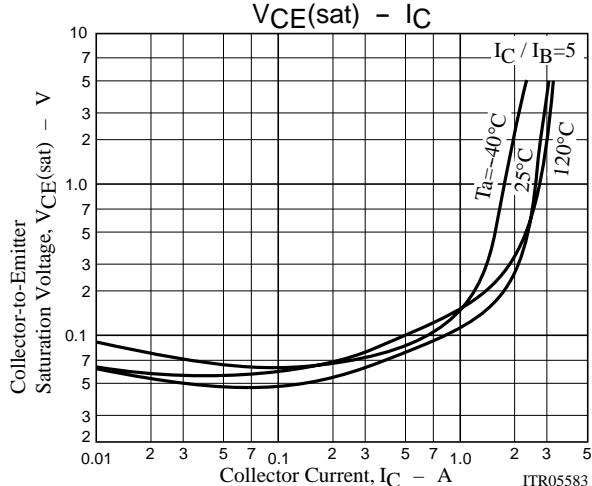
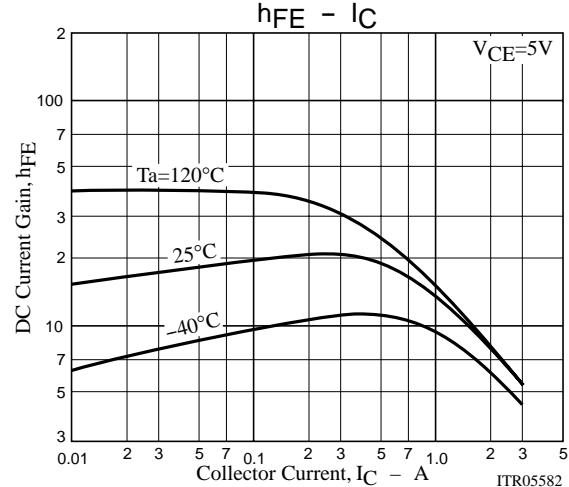
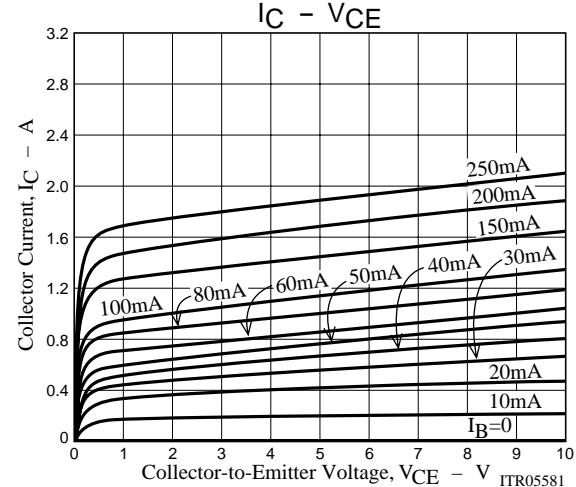
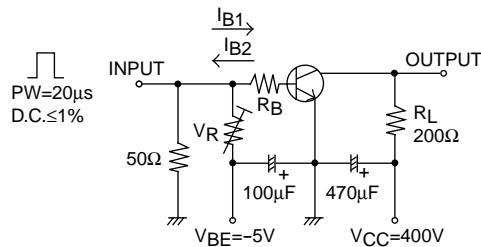
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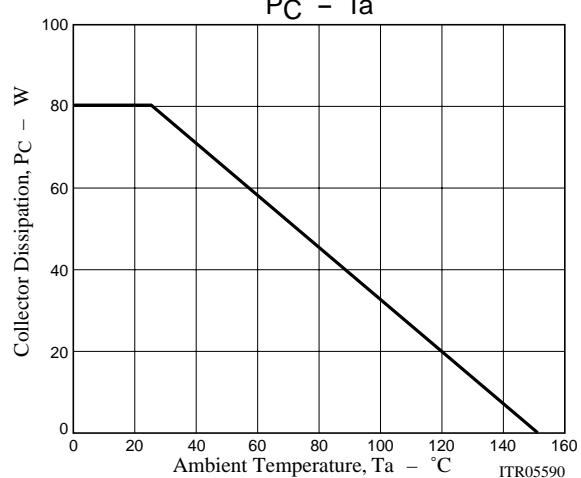
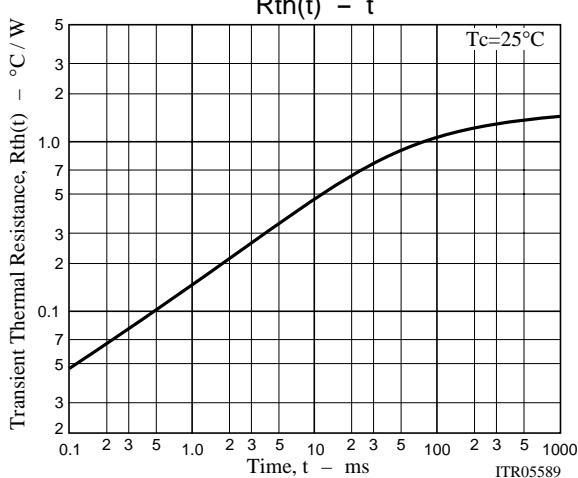
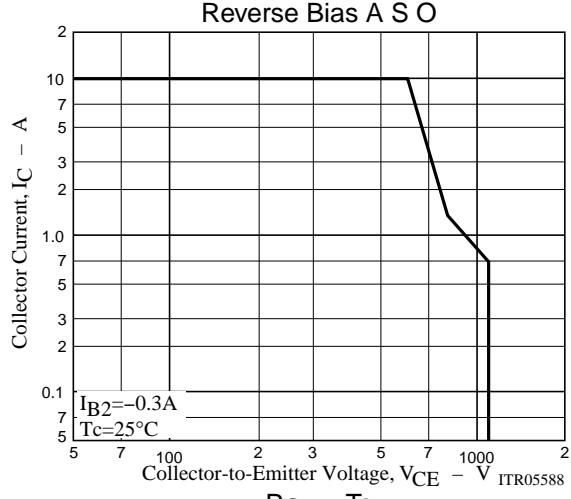
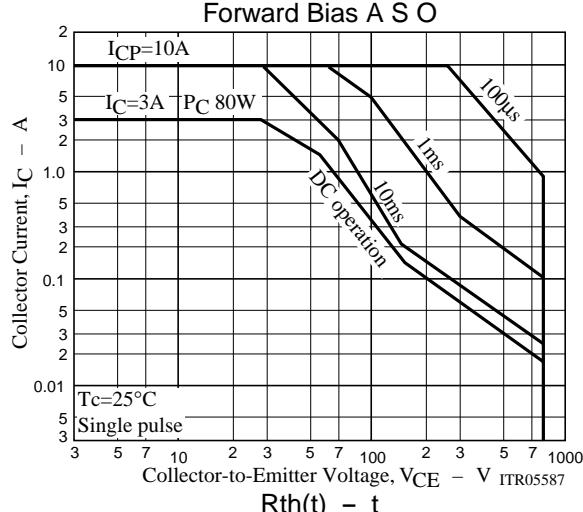
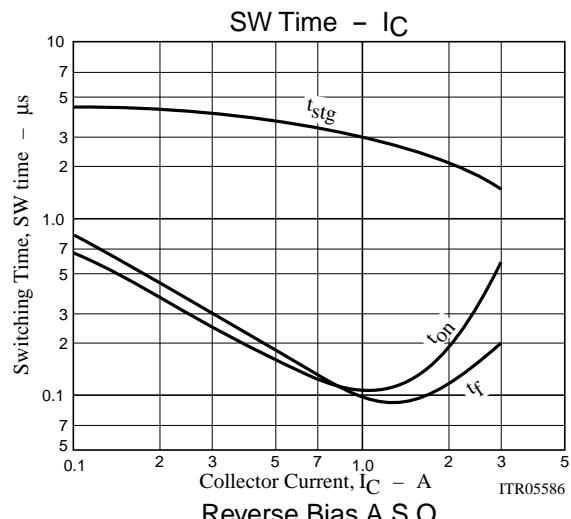
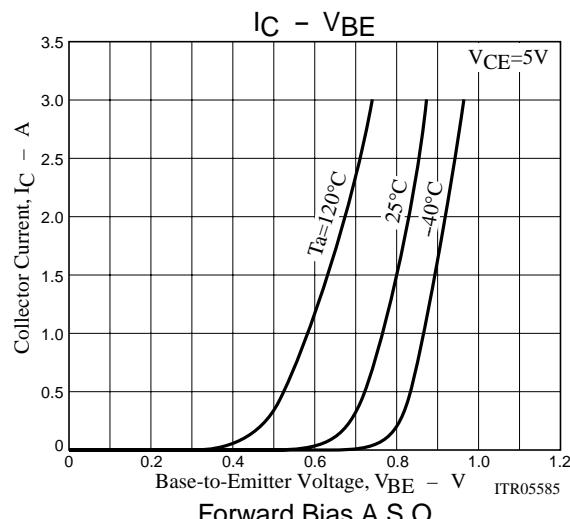
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	$V_{CE}=10V, I_C=0.2A$		15		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$		60		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=1.5A, I_B=0.3A$			2.0	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1.5A, I_B=0.3A$			1.5	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0$	1100			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	$V_{CEX(sus)}$	$I_C=1.5A, I_B1=-I_B2=0.3A, L=2mH, \text{clamped}$	800			V
Turn-ON Time	t_{on}	$V_{CC}=400V, 5I_B1=-2.5I_B2=I_C=2A, R_L=200\Omega$			0.5	μs
Storage Time	t_{stg}	$V_{CC}=400V, 5I_B1=-2.5I_B2=I_C=2A, R_L=200\Omega$			3.0	μs
Fall Time	t_f	$V_{CC}=400V, 5I_B1=-2.5I_B2=I_C=2A, R_L=200\Omega$			0.3	μs

Switching Time Test Circuit





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