

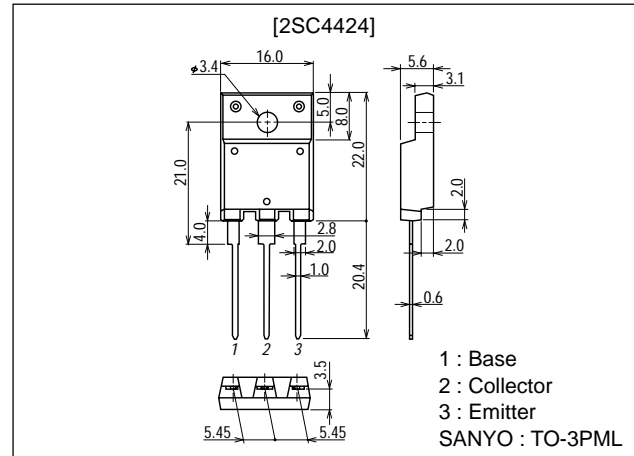
**2SC4424****400V/16A Switching Regulator Applications****Features**

- High breakdown voltage, high reliability.
- Fast switching speed ( $t_f$ : 0.1 $\mu$ s typ).
- Wide ASO.
- Adoption of MBIT process.
- Micaless package facilitating easy mounting.

**Package Dimensions**

unit:mm

2039D

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

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	$V_{EBO}$		7	V
Collector Current	$I_C$		16	A
Collector Current (Pulse)	$I_{CP}$	$PW \leq 300\mu\text{s}$ , duty cycle $\leq 10\%$	32	A
Base Current	$I_B$		6	A
Collector Dissipation	$P_C$		3	W
		$T_c = 25^\circ\text{C}$	60	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	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5\text{V}$ , $I_C = 0$			10	$\mu\text{A}$

Continued on next page.

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■ SANYO assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all SANYO products described or contained herein.

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# 2SC4424

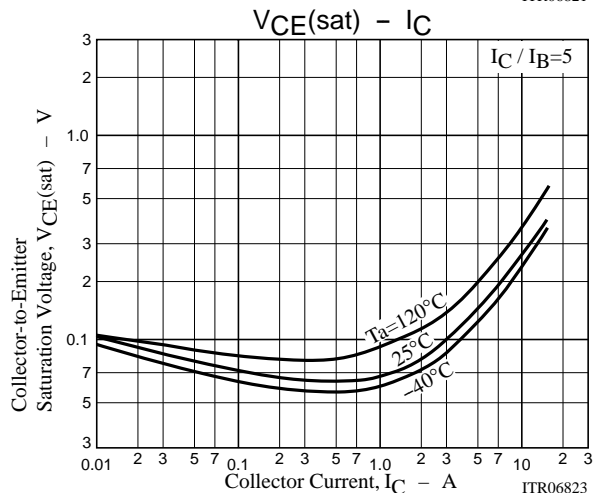
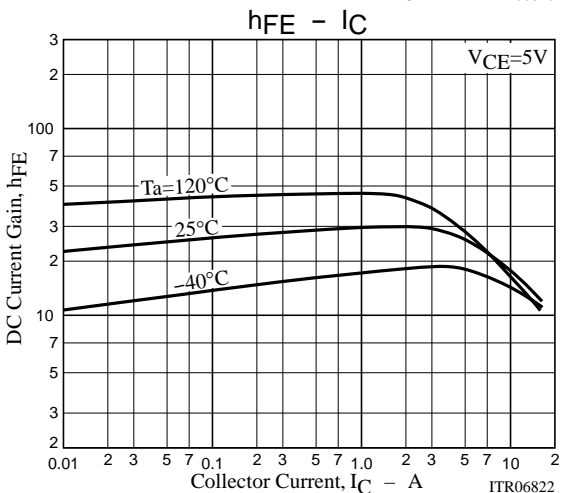
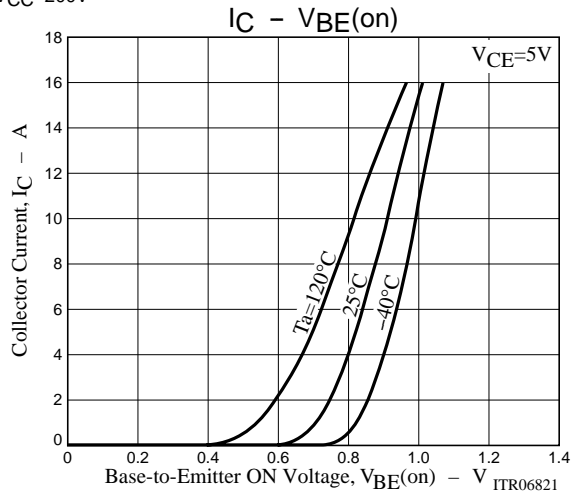
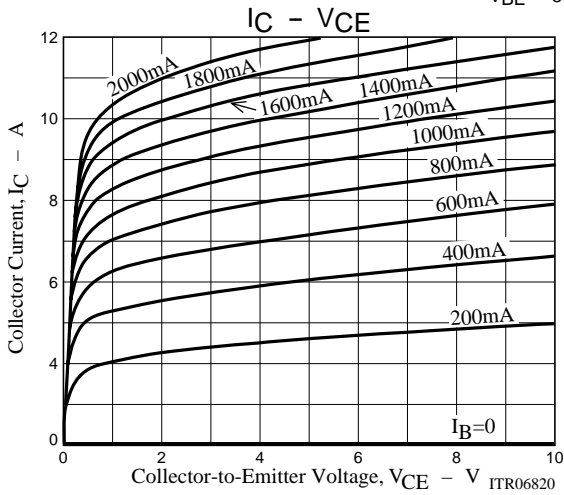
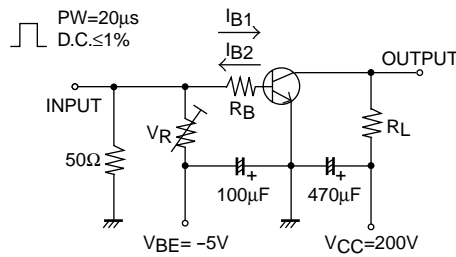
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
DC Current Gain	$h_{FE1}^*$	$V_{CE}=5V, I_C=2A$	15		50	
	$h_{FE2}$	$V_{CE}=5V, I_C=10A$	10			
	$h_{FE3}$	$V_{CE}=5V, I_C=10mA$	10			
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10A, I_B=2A$			0.8	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=10A, I_B=2A$			1.5	V
Gain-Bandwidth Product	$f_T$	$V_{CE}=10V, I_C=2A$		20		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10V, f=1MHz$		230		pF
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=1mA, I_E=0$	500			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=10mA, R_{BE}=\infty$	400			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=1mA, I_C=0$	7			V
Collector-to-Emitter Sustain Voltage	$V_{CEX(sus)}$	$I_C=8A, I_{B1}=0.8A, I_{B2}=-3.2A, L=200\mu H, \text{Clamped}$	400			V
Turn-ON Time	$t_{on}$	$I_C=12A, I_{B1}=2.4A, I_{B2}=-4.8A, R_L=16.6\Omega, V_{CC}=200V$			0.5	$\mu s$
Storage Time	$t_{stg}$	$I_C=12A, I_{B1}=2.4A, I_{B2}=-4.8A, R_L=16.6\Omega, V_{CC}=200V$			2.5	$\mu s$
Fall Time	$t_f$	$I_C=12A, I_{B1}=2.4A, I_{B2}=-4.8A, R_L=16.6\Omega, V_{CC}=200V$			0.3	$\mu s$

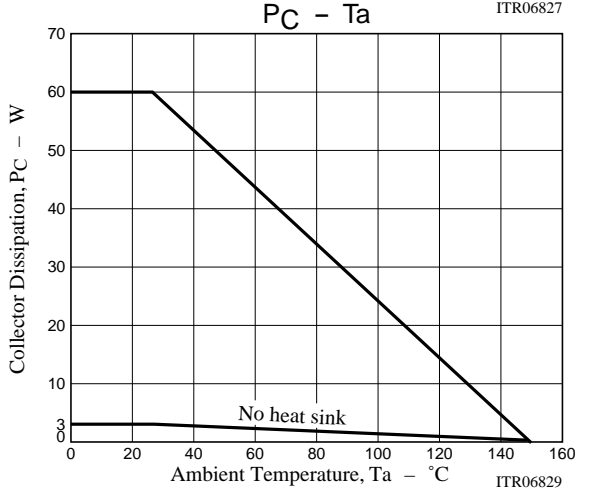
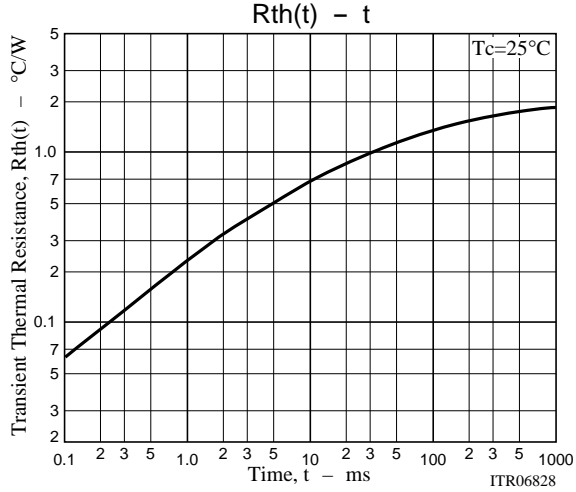
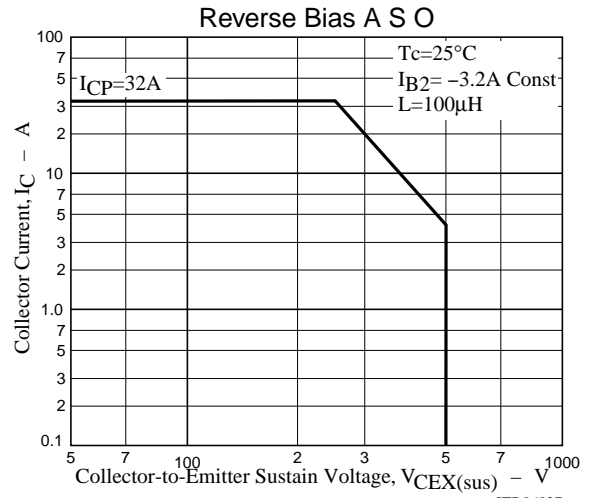
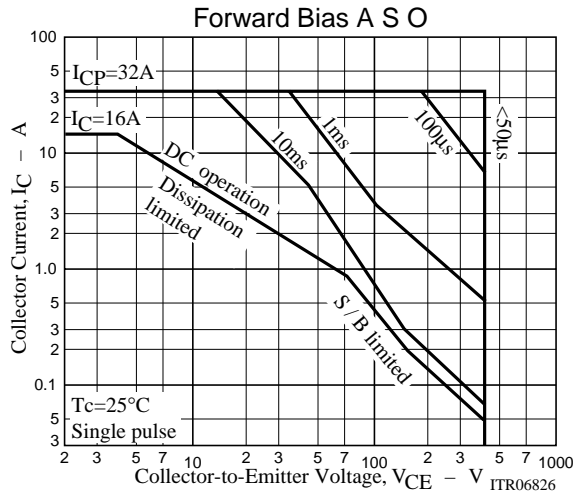
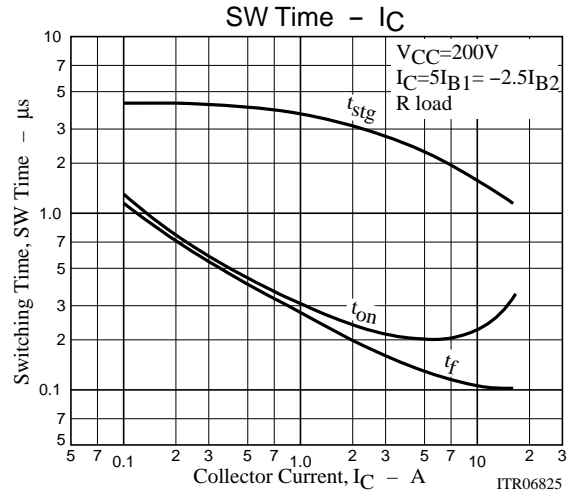
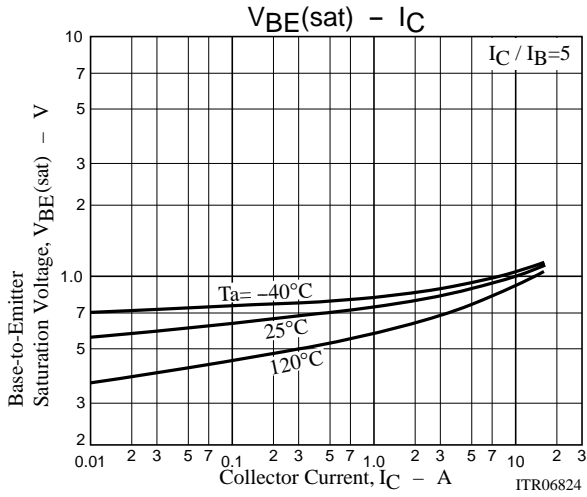
\* : The  $h_{FE1}$  of the 2SC4424 is classified as follows. When specifying the  $h_{FE1}$  rank, specify two ranks or more in principle.

Rank	L	M	N
$h_{FE}$	15 to 30	20 to 40	30 to 50

## Switching Time Test Circuit



# 2SC4424



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