



400V/7A Switching Regulator Applications

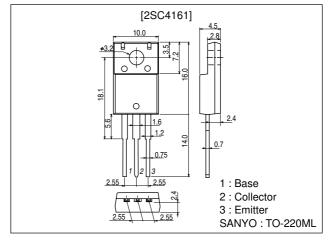
Features

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

Package Dimensions

unit:mm

2041A



Specifications

Absolute Maximum Ratings at Ta = 25°C

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Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CBO}		500	V
Collector-to-Emitter Voltage	V _{CEO}		400	V
Emitter-to-Base Voltage	V _{EBO}		7	V
Collector Current	IС		7	Α
Collector Current (Pulse)	I _{CP}	PW≤300μs, duty cycle≤10%	14	Α
Base Current	IB		3	Α
Collector Dissipation	instice P-		2	W
Collector Dissipation	PC	Tc=25°C	30	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
Farameter			min	typ	max	Utill
Collector Cutoff Current	I _{CBO}	V _{CB} =400V, I _E =0			10	μΑ
Emitter Cutoff Current	I _{EBO}	V _{EB} =5V, I _C =0	·		10	μΑ

Continued on next page.

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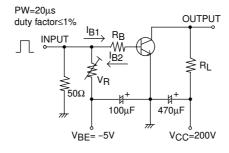
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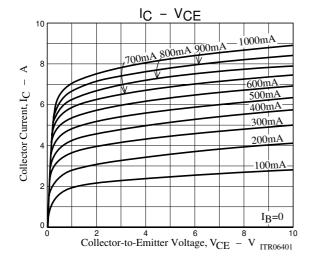
Parameter	Symbol	Conditions	Ratings			Unit
Farameter	Syllibol	Conditions	min	typ	max	Offit
	h _{FE} 1	V _{CE} =5V, I _C =0.8A			50*	
DC Current Gain	h _{FE} 2	$V_{CE}=5V$, $I_{C}=4A$				
	h _{FE} 3	V _{CE} =5V, I _C =10mA	10			
Gain-Bandwidth Product	fT	V _{CE} =10V, I _C =0.8A		20		MHz
Output Capacitance	C _{ob}	V _{CB} =10V, f=1MHz		80		pF
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
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 =5mA, R _{BE} =∞				V
Emitter-to-Base Breakdown Voltage	V _{(BR)EBO}	I _E =1mA, I _C =0				V
Collector-to-Emitter Sustain Voltage	V _{CEX(sus)}	I _C =3A, I _{B1} =0.3A, I _{B2} =-1.2A, L=1mH, clamped				V
Turn-ON Time	ton	I _C =5A, I _{B1} =1A, I _{B2} =-2A, R _L =40Ω, V _{CC} =200V			0.5	μs
Storage Time	t _{stg}	I _C =5A, I _{B1} =1A, I _{B2} =-2A, R _L =40Ω, V _{CC} =200V			2.5	μs
Fall Time	t _f	I _C =5A, I _{B1} =1A, I _{B2} =-2A, R _L =40Ω, V _{CC} =200V			0.3	μs

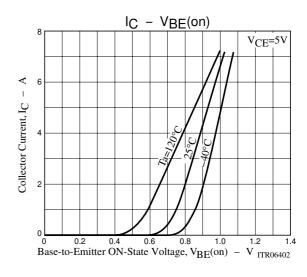
^{*:} The $h_{FE}1$ of the 2SC4161 is classified as follows. When specifying the $h_{FE}1$ rank, specify two ranks or more in principle.

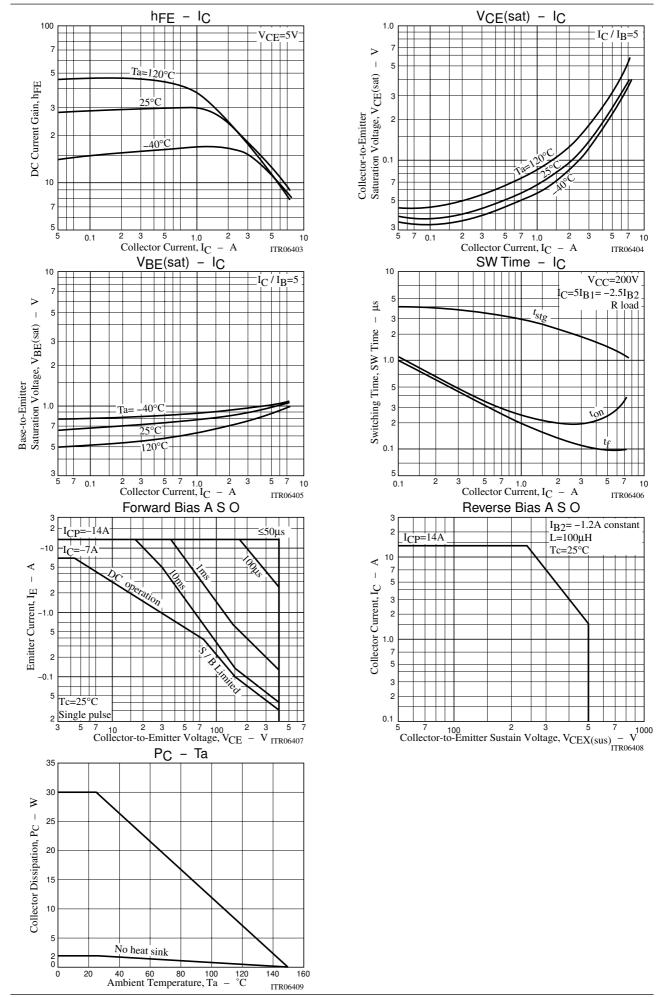
Rank	L	М	N	
h _{FE}	15 to 30	20 to 40	30 to 50	

Switching Time Test Circuit









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