Ordering number : EN6913B

2SA2040/2SC5707

Bipolar Transistor
(-)50V, (-)8A, Low VCE(sat), (PNP)NPN Single TP/TP-FA

ON Semiconductor®
http://onsemi.com

Applications

・ DC / DC converter, relay drivers, lamp drivers, motor drivers, flash

Features

・ Adoption of FBET and MBIT processes
・ Low collector-to-emitter saturation voltage
・ Large current capacitance
・ High-speed switching
・ High allowable power dissipation

Specifications ( ): 2SA2040

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(−50)100	V
Collector-to-Emitter Voltage	V_{CES}		(−50)100	V
Collector-to-Emitter Voltage	V_{CEO}		(−)50	V
Emitter-to-Base Voltage	V_{EBO}		(−)6	V
Collector Current	I_C		(−)8	A
Collector Current (Pulse)	I_{CP}		(−)11	A

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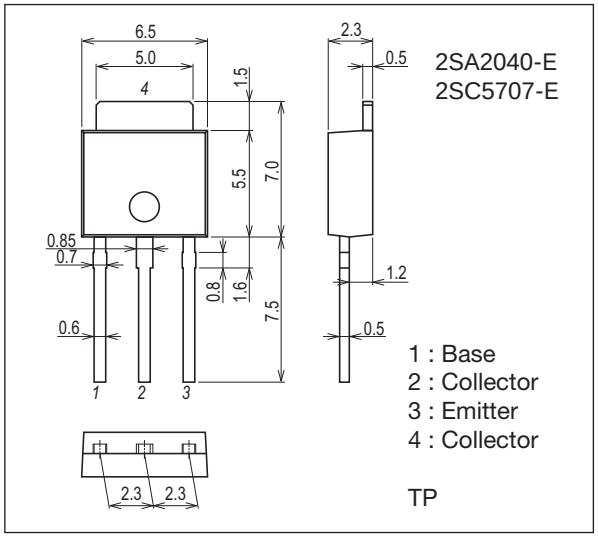
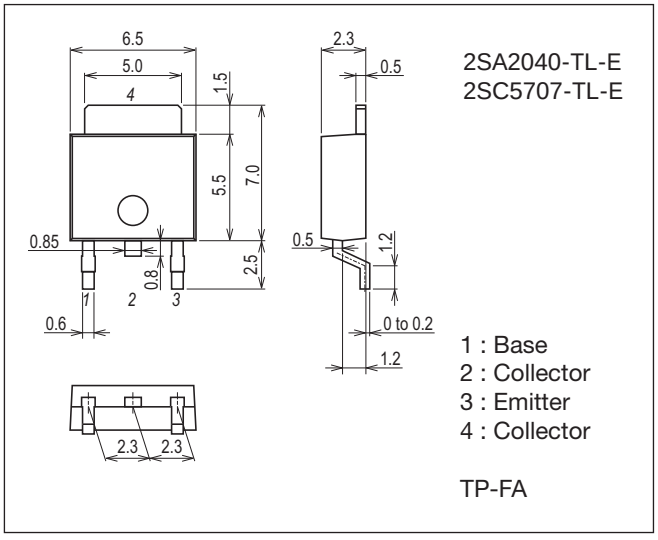
Package Dimensions unit : mm (typ)
7518-003



Package Dimensions unit : mm (typ)
7003-003

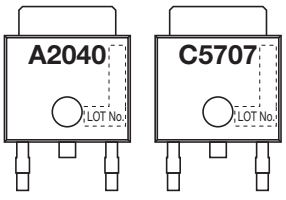


Product & Package Information

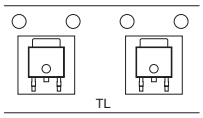
- Package : TP
- JEITA, JEDEC : SC-64, TO-251
- Minimum Packing Quantity : 500 pcs./bag

- Package : TP-FA
- JEITA, JEDEC : SC-63, TO-252
- Minimum Packing Quantity : 700 pcs./reel

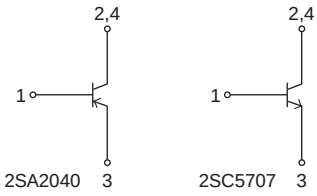
Marking (TP, TP-FA)



Packing Type (TP-FA) : TL



Electrical Connection



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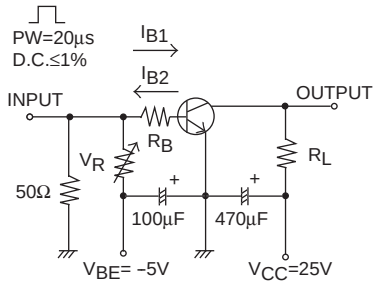
Parameter	Symbol	Conditions	Ratings	Unit
Base Current	I_B		(–)2	A
Collector Dissipation	P_C		1.0	W
		Tc=25°C	15	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		–55 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(–)40V, I_E=0A			(–)0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)4V, I_C=0A			(–)0.1	μA
DC Current Gain	h_{FE}	V_{CE}=(–)2V, I_C=(–)500mA	200		560	
Gain-Bandwidth Product	f_T	V_{CE}=(–)10V, I_C=(–)500mA		(290)330		MHz
Output Capacitance	Cob	V_{CB}=(–)10V, f=1MHz		(50)28		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)1	I_C=(–)3.5A, I_B=(–)175mA		(–230)160	(–390)240	mV
	V_{CE}(sat)2	I_C=(–)2A, I_B=(–)40mA		(–240)110	(–400)170	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=(–)2A, I_B=(–)40mA		(–)0.83	(–)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)10μA, I_E=0A	(–50)100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CES}$	I_C=(–)100μA, R_{BE}=0Ω	(–50)100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=(–)10μA, I_C=0A	(–)6			V
Turn-On Time	t_{on}	See specified Test Circuit.		(40)30		ns
Storage Time	t_{stg}			(225)420		ns
Fall Time	t_f			25		ns

Switching Time Test Circuit



$20I_{B1}$= –$20I_{B2}$=I_C=2.5A
For PNP, the polarity is reversed.

Ordering Information

Device	Package	Shipping	memo
2SA2040-E	TP	500pcs./bag	Pb Free
2SC5707-E	TP	500pcs./bag	
2SA2040-TL-E	TP-FA	700pcs./reel	
2SC5707-TL-E	TP-FA	700pcs./reel	