Ordering number : EN1334F

2SC3332

Bipolar Transistor
160V, 0.7A, Low V_{CE}(sat) NPN Single NP

ON Semiconductor®
http://onsemi.com

Features

- Hgih breakdown voltage
- Excellent h_{FE} linearity
- Wide SOA and highly resistant to breakdown
- Adoption of MBIT process

Specifications

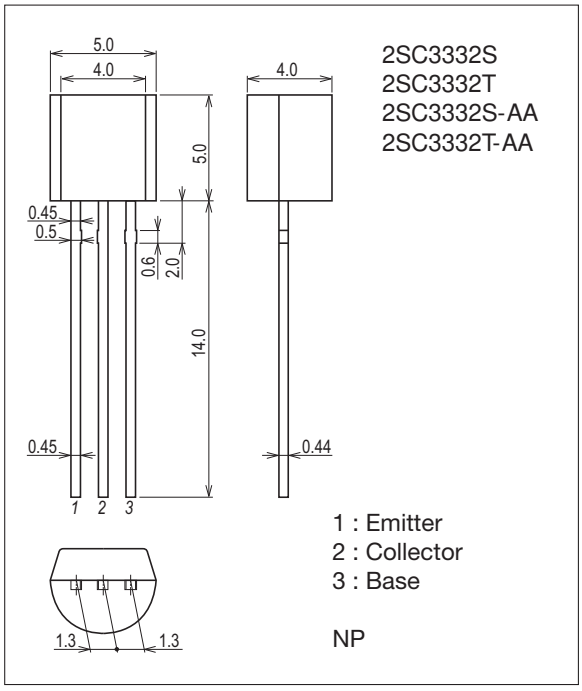
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector to Base Voltage	V_{CBO}		180	V
Collector to Emitter Voltage	V_{CEO}		160	V
Emitter to Base Voltage	V_{EBO}		6	V
Collector Current	I_C		0.7	A
Collector Current (Pulse)	I_{CP}		1.5	A
Collector Dissipation	P_C		700	mW
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.

Package Dimensions

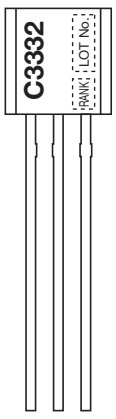
unit : mm (typ)
7522-002



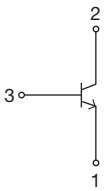
Product & Package Information

- Package : NP
- JEITA, JEDEC : SC-34A, TO-92, TO-226AA, SOT-54
- Minimum Packing Quantity : 1,500 pcs./box, 500pcs./bag

Marking



Electrical Connection



Semiconductor Components Industries, LLC, 2013

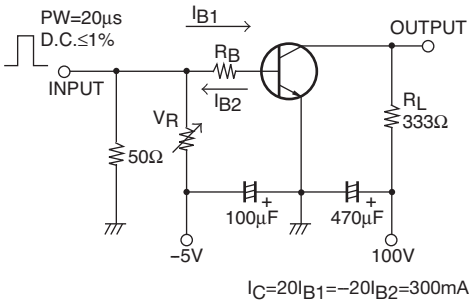
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=120V, I_E=0A			0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V, I_C=0A			0.1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=5V, I_C=100mA	140*		400*	
	$h_{FE}2$	V_{CE}=5V, I_C=10mA	80			
Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=50mA		120		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		8		pF
Collector to Emitter Saturation Voltage	V_{CE}(sat)	I_C=250mA, I_B=25mA		0.12	0.4	V
Base to Emitter Saturation Voltage	V_{BE}(sat)	I_C=250mA, I_B=25mA		0.85	1.2	V
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=10μA, I_E=0A	180			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	160			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.		50		ns
Storage Time	t_{stg}			1000		ns
Fall Time	t_f			60		ns

* : The 2SC3332 is classified by 100mA h_{FE} as follows :

Rank	S	T
h_{FE}	140 to 280	200 to 400

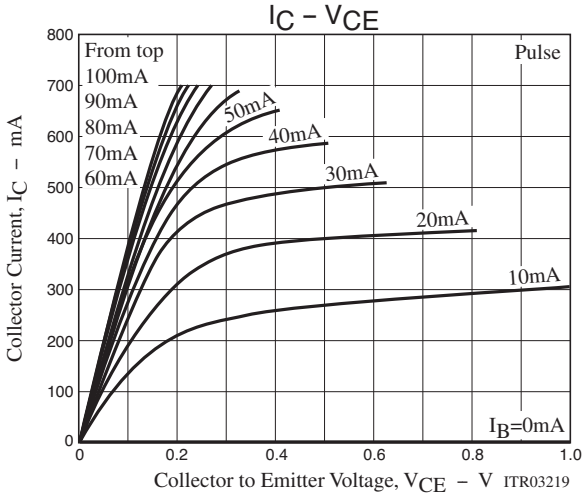
Switching Time Test Circuit

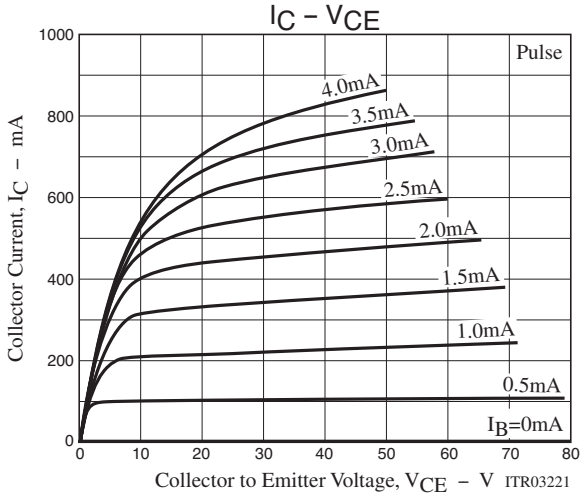


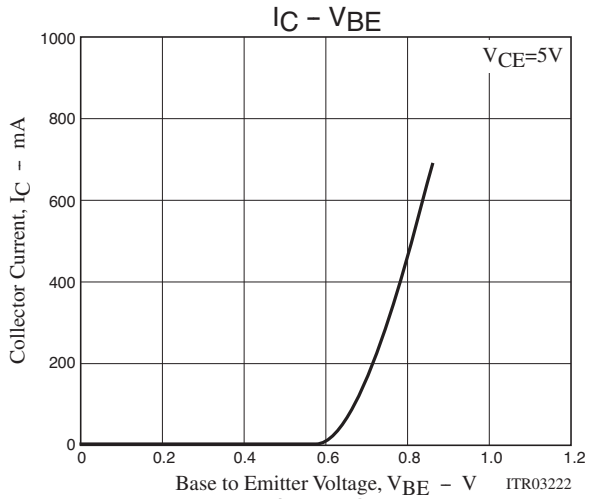
I_C=20I_{B1}=–20I_{B2}=300mA

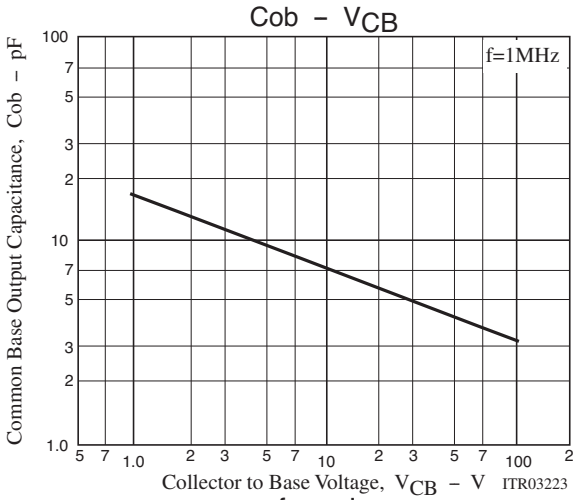
Ordering Information

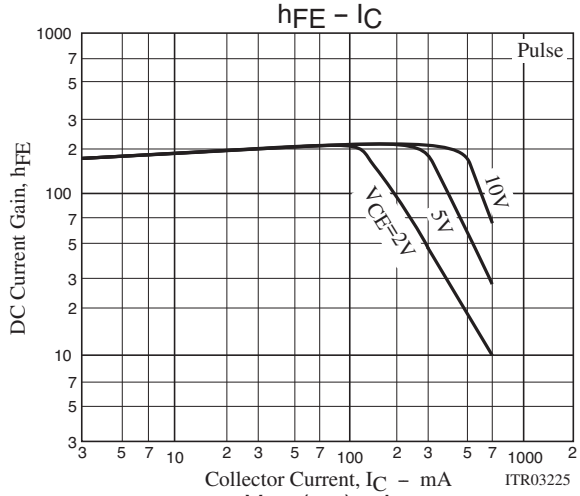
Device	Package	Shipping	memo
2SC3332S	NP	500pcs./bag	Pb Free
2SC3332T	NP	500pcs./bag	
2SC3332S-AA	NP	1,500pcs./box	
2SC3332T-AA	NP	1,500pcs./box	

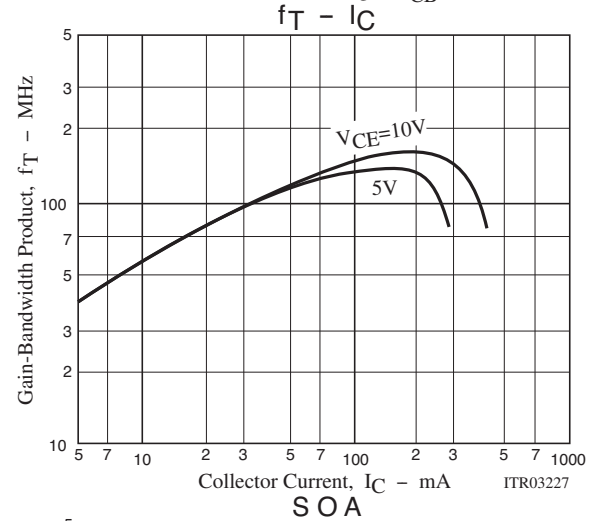


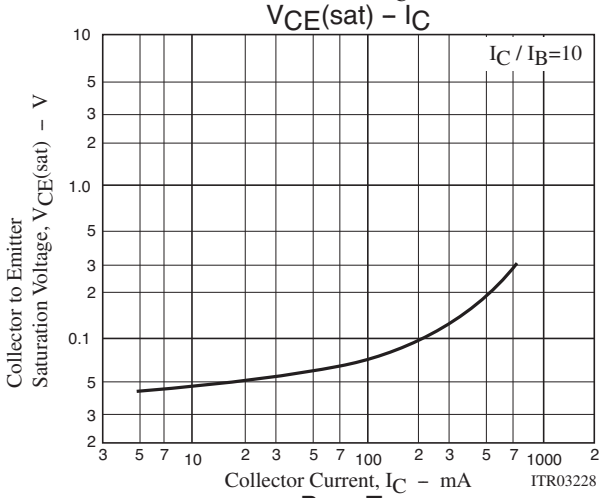


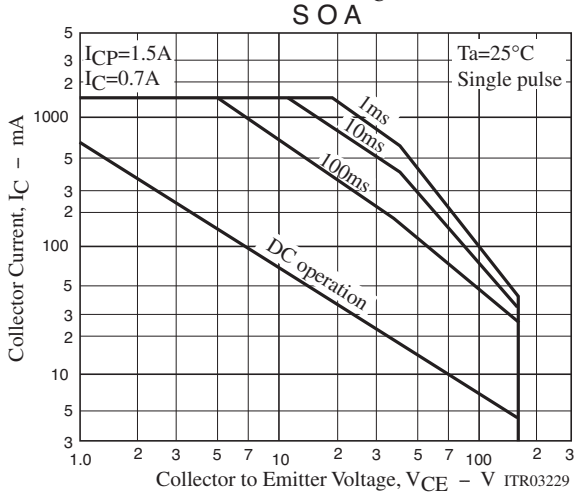

IC – VBE
VCE=5V
Collector Current, IC – mA
Base to Emitter Voltage, VBE – V
ITR03222

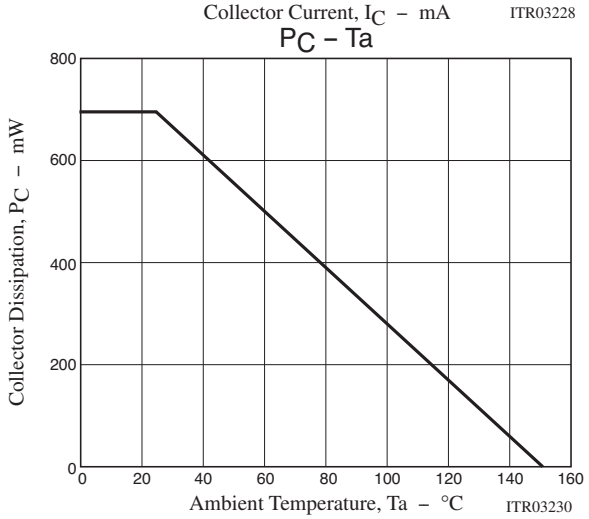

Cob – VCB
f=1MHz
Common Base Output Capacitance, Cob – pF
Collector to Base Voltage, VCB – V
ITR03223


hFE – IC
Pulse
VCE=2V
5V
10V
DC Current Gain, hFE
Collector Current, IC – mA
ITR03225


fT – IC
VCE=10V
5V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
ITR03227

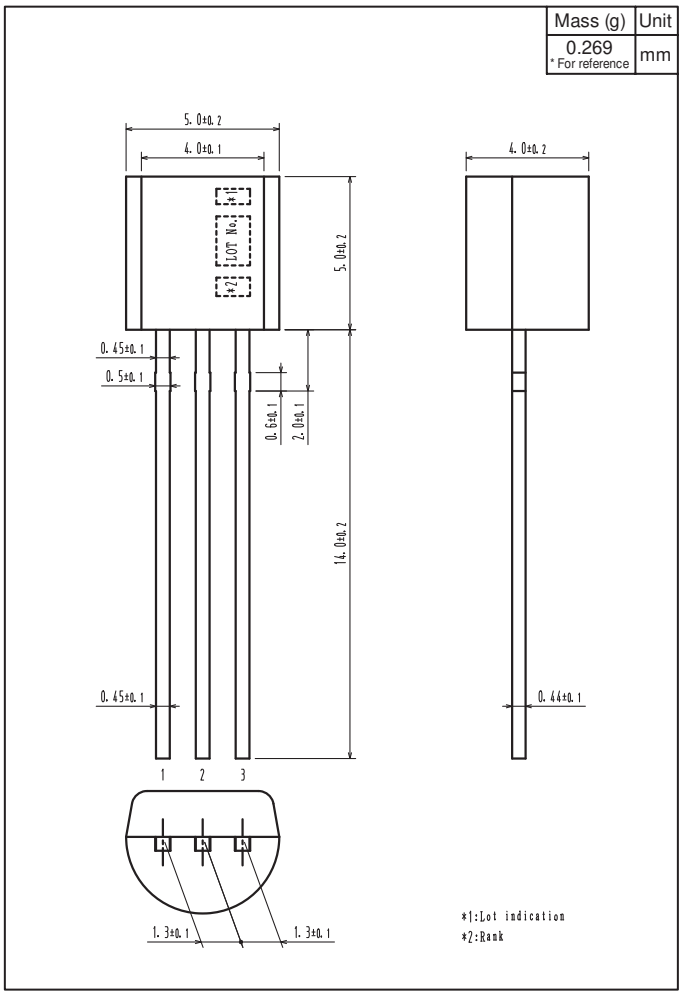

VCE(sat) – IC
IC / IB=10
Collector to Emitter
Saturation Voltage, VCE(sat) – V
Collector Current, IC – mA
ITR03228


S O A
ICP=1.5A
IC=0.7A
Ta=25°C
Single pulse
1ms
10ms
100ms
DC operation
Collector Current, IC – mA
Collector to Emitter Voltage, VCE – V
ITR03229


PC – Ta
Collector Dissipation, PC – mW
Ambient Temperature, Ta – °C
ITR03230

Outline Drawing

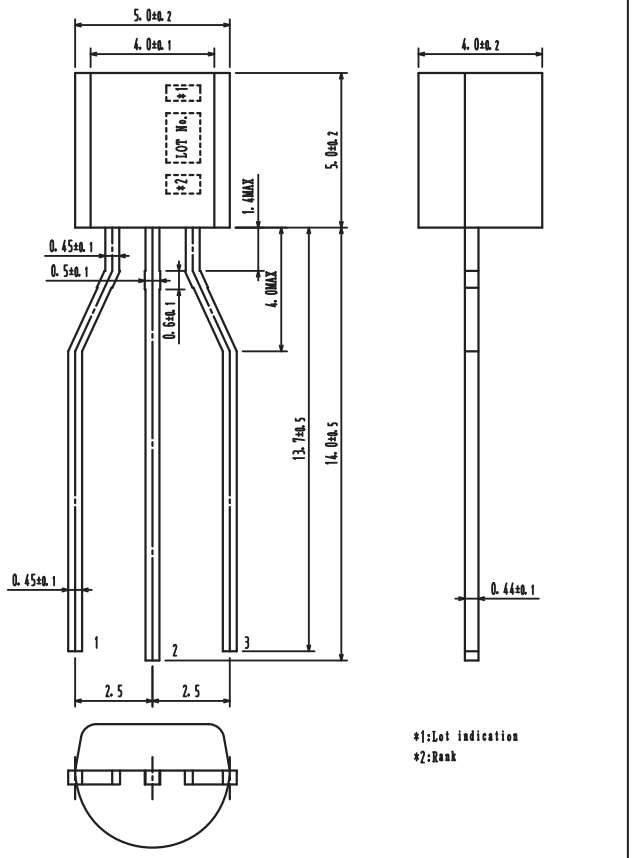
2SC3332S, 2SC3332T



Outline Drawing

2SC3332S-AA, 2SC3332T-AA

Mass (g)	Unit
0.269 * For reference	mm



ON Semiconductor and the ON logo are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of SCILLC's product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent-Marking.pdf. SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.