



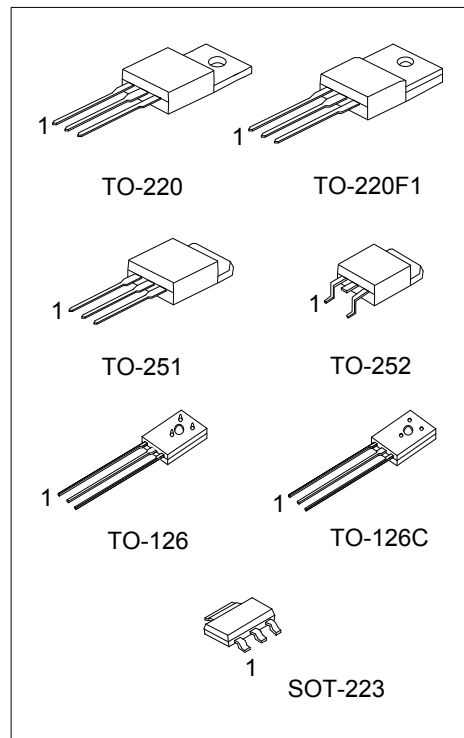
2SD1691

NPN SILICON TRANSISTOR

LOW COLLECTOR
SATURATION VOLTAGE
LARGE CURRENT

■ FEATURES

- *High Power Dissipation
- *Complementary to 2SB1151



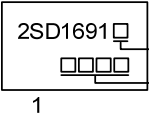
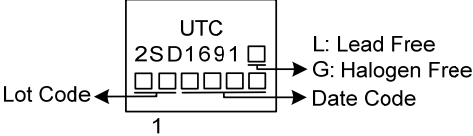
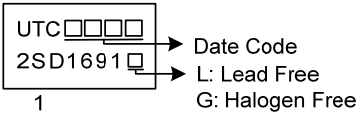
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2SD1691L-x-AA3-R	2SD1691G-x-AA3-R	SOT-223	B	C	E	Tape Reel
2SD1691L-x-TA3-T	2SD1691G-x-TA3-T	TO-220	B	C	E	Tube
2SD1691L-x-TF1-T	2SD1691G-x-TF1-T	TO-220F1	B	C	E	Tube
2SD1691L-x-TM3-T	2SD1691G-x-TM3-T	TO-251	B	C	E	Tube
2SD1691L-x-TN3-T	2SD1691G-x-TN3-T	TO-252	B	C	E	Tape Reel
2SD1691L-x-T60-T	2SD1691G-x-T60-T	TO-126	E	C	B	Tube
2SD1691L-x-T60-K	2SD1691G-x-T60-K	TO-126	E	C	B	Bulk
2SD1691L-x-T6C-K	2SD1691G-x-T6C-K	TO-126C	E	C	B	Bulk

Note: Pin Assignment: B: Base C: Collector E: Emitter

<p>2SD1691G-x-AA3-R</p>	<p>(1) R: Tape Reel, T: Tube, K: Bulk (2) AA3: SOT-223, TA3: TO-220, TF1: TO-220F1, TN3: TO-252, TM3: TO-251, T60: TO-126, T6C: TO-126C (3) x: refer to Classification of h_{FE2} (4) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING

PACKAGE	MARKING
SOT-223	 <p>L: Lead Free G: Halogen Free Date Code</p> <p>1</p>
TO-220 / TO-220F1 TO-251 / TO-252	 <p>UTC 2SD1691 L: Lead Free G: Halogen Free Date Code</p> <p>Lot Code</p> <p>1</p>
TO-126 / TO-126C	 <p>UTC 2SD1691 Date Code L: Lead Free G: Halogen Free</p> <p>1</p>

■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	60	V
Collector-Emitter Voltage		V_{CEO}	60	V
Emitter-Base Voltage		V_{EBO}	7	V
Collector Current	DC	I_C	5	A
	Pulse ($PW \leq 10\text{ms}$, Duty Cycle $\leq 50\%$)	I_{CP}	8	A
Base Current		I_B	1	A
Collector Power Dissipation ($T_C=25^\circ\text{C}$)	TO-220	P_C	54	W
	TO-220F1		23	W
	SOT-223		9	W
	TO-251/TO-252		36	W
	TO-126/TO-126C		20	W
Junction Temperature		T_J	+150	$^\circ\text{C}$
Storage Temperature Range		T_{STG}	-55 ~ +150	$^\circ\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

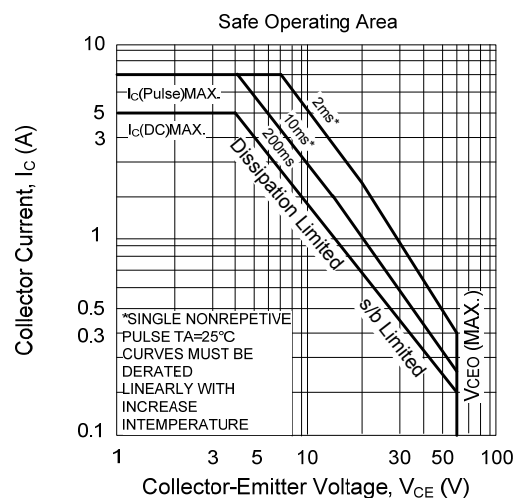
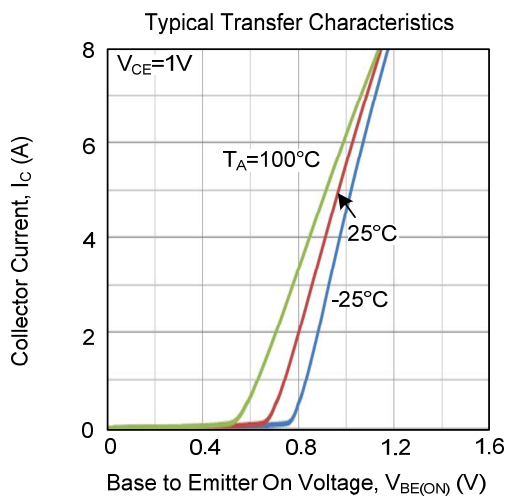
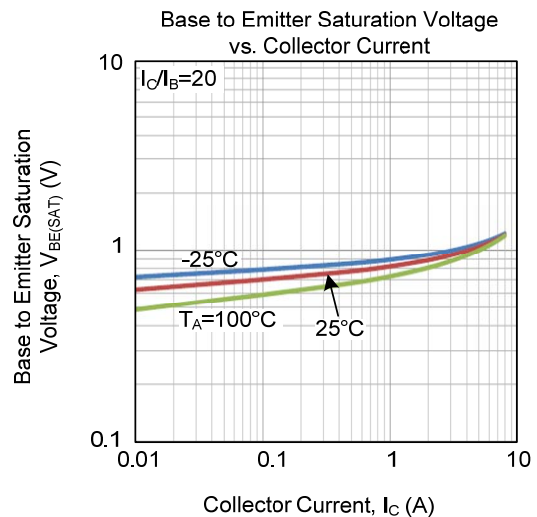
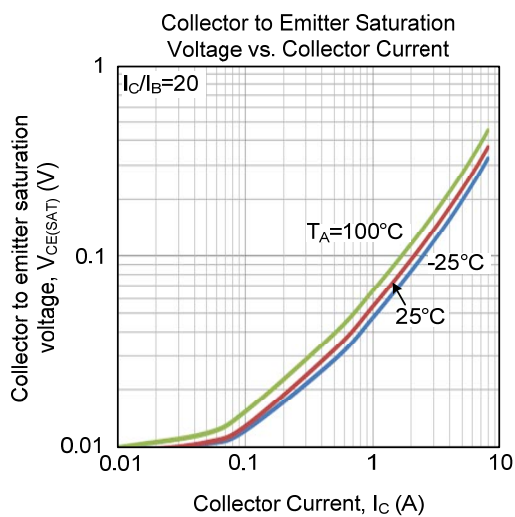
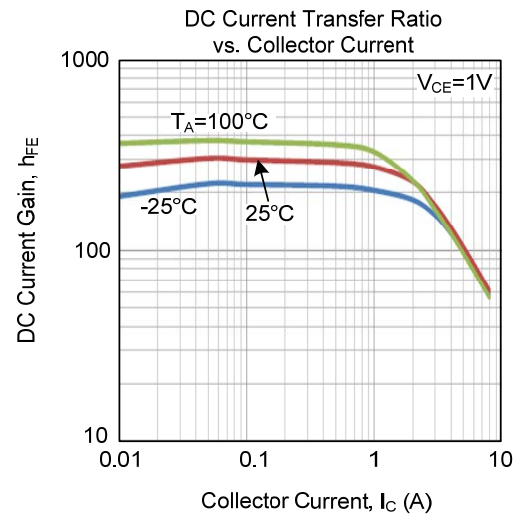
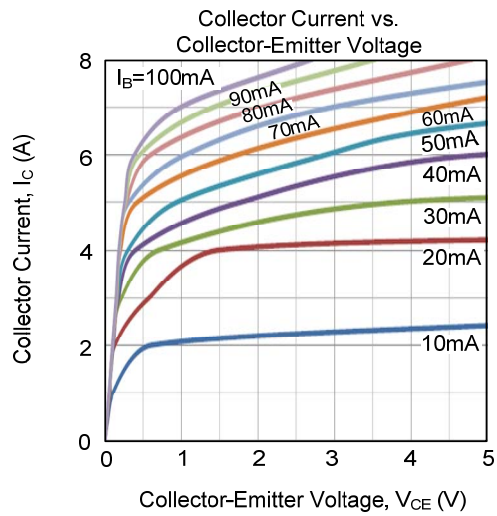
CHARACTERISTIC		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Cut-off Current		I_{CBO}	$V_{CB}=50\text{V}, I_E=0$			10	μA
Emitter Cut-off Current		I_{EBO}	$V_{EB}=7\text{V}, I_C=0$			10	μA
DC Current Gain		h_{FE1}	$V_{CE}=1\text{V}, I_C=0.1\text{A}$	60			
		h_{FE2}	$V_{CE}=1\text{V}, I_C=2\text{A}$	160		400	
		h_{FE3}	$V_{CE}=2\text{V}, I_C=5\text{A}$	50			
Collector-Emitter Saturation Voltage (Note)		$V_{CE(SAT)}$	$I_C=2\text{A}, I_B=0.2\text{A}$		0.1	0.3	V
Base-Emitter Saturation Voltage (Note)		$V_{BE(SAT)}$	$I_C=2\text{A}, I_B=0.2\text{A}$		0.9	1.2	V
Switching Time	Turn On Time	T_{ON}			0.2	1	μs
	Storage Time	T_{STG}			1.1	2.5	
	Fall Time	T_F			0.2	1	

Note: Pulse test: $P_W \leq 50\mu\text{s}$, Duty Cycle $\leq 2\%$ Pulse.

■ CLASSIFICATION OF h_{FE2}

RANK	O	Y
RANGE	160-320	200-400

TYPICAL CHARACTERISTICS



UTC 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 UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.