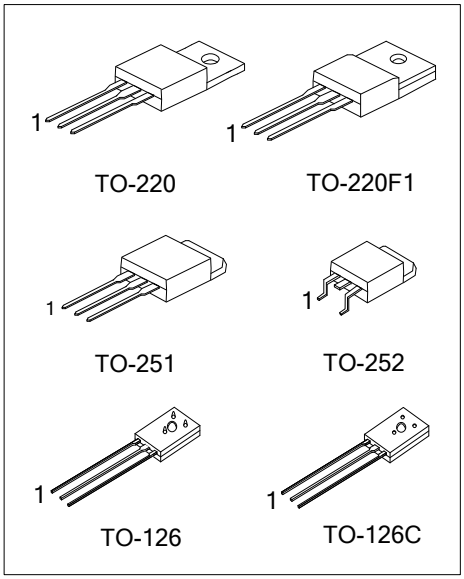
2SD1691

NPN SILICON TRANSISTOR

LOW COLLECTOR SATURATION VOLTAGE LARGE CURRENT



■ FEATURES

*High Power Dissipation
*Complementary to 2SB1151

■ ORDERING INFORMATION

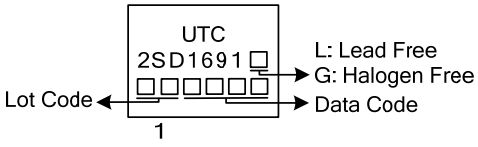
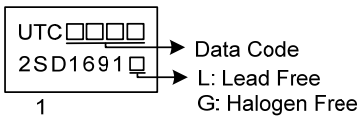
Ordering Number		Package	Pin Assignment			Packing
Lead Free Plating	Halogen Free		1	2	3	
2SD1691L-x-TA3-T	2SD1691G-x-TA3-T	TO-220	B	C	E	Tube
2SD1691L-x-TF1-T	2SD1691G-x-TF1-T	TO-220F1	B	C	E	Tube
2SD1691L-x-TM3-T	2SD1691G-x-TM3-T	TO-251	B	C	E	Tube
2SD1691L-x-TN3-T	2SD1691G-x-TN3-T	TO-252	B	C	E	Tape Reel
2SD1691L-x-T60-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

2SD1691L-x-TA3-T
(1)Packing Type
(2)Package Type
(3)Rank
(4)Green Package

(1) K: Bulk, T: Tube, R: Tape Reel
(2) 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) L: Lead Free, G: Halogen Free and Lead Free

■ MARKING

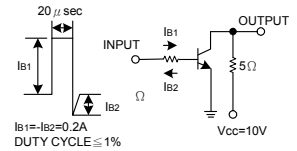
TO-220 / TO-220F1 / TO-251 / TO-252	TO-126 / TO-126C
	

■ ABSOLUTE MAXIMUM RATINGS (T_A=25°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≦10ms,Duty Cycle≦50%)		I_{CP}	8	
Base Current			I_B	1	A
Collector Power Dissipation (Tc=25°C)		TO-220F1	P_C	23	W
		TO-220		54	
		TO-251/TO-252		36	
		TO-126/ TO-126C		20	
Junction Temperature			T_J	150	°C
Storage Temperature Range			T_{STG}	-55 ~ +150	°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°C, unless otherwise specified)

CHARACTERISTIC		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB}=50V,I_E=0			10	μA
Emitter Cut-off Current		I_{EBO}	V_{EB}=7V, I_C=0			10	μA
DC Current Gain		h_{FE1}	V_{CE}=1V, I_C =0.1A	60			
		h_{FE2}	V_{CE}=1V, I_C =2A	160		400	
		h_{FE3}	V_{CE}=2V, I_C =5A	50			
Collector-Emitter Saturation Voltage		$V_{CE(SAT)}$ (Note)	I_C=2A, I_B=0.2A		0.1	0.3	V
Base-Emitter Saturation Voltage		$V_{BE(SAT)}$ (Note)	I_C=2A, I_B=0.2A		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≦50μS, Duty Cycle≦2% Pulse

■ CLASSIFICATION OF h_{FE2}

RANK	O	Y
RANGE	160-320	200-400

■ TYPICAL CHARACTERISTICS