

TO-220 Power Package Transistors (NPN)

Type No.	Maximum Ratings					Electrical Characteristics (Ta=25°C, Unless Otherwise Specified)																	
	V _{CBO} (V) Min	V _{CEO} (V) Min	V _{EBO} (V) Min	P _D (W) @Tc=25°C	I _C (A)	I _{CBO} (μA) Max	V _{CB} (V) @ I _C	I _{CES} (μA) Max	V _{CE} (V) @ I _{CES}	h _{FE} Min	h _{FE} Max	I _C & V _{CE} (A) (A)	V _{CE(SAT)} (V) Max	V _{BE(SAT)} (V) Min	V _{BE(SAT)} (V) Max	I _C (A)	C _{ob} (pF) Max	Typ	f _t (MHz) Min	Typ	Max	I _C (mA)	
2SC2335R	500	400	7	40	7	10	400			20	80	0.1	5	1	1.2	3							
2SC2335Y	500	400	7	40	7	10	400			20	80	0.1	5	1	1.2	3							
2SC3039	500	400	7	50	7	10	400			15	8	0.8	5	1	1.5	4	80		20			800	
2SD1163	300	120		40	7	5000	300			25		5	5	2	1.2	5							
2SD1163A	350	150		40	7	5000	350			25		5	5	1	1.2	5							
2SD288	80	55	5	25	3	50	50			40	240	0.5	5	1		1							
2SD288O	80	55	5	25	3	50	50			70	140	0.5	5	1		1							
2SD288R	80	55	5	25	3	50	50			40	80	0.5	5	1		1							
2SD288Y	80	55	5	25	3	50	50	120	240	0.5	5	1	1										
2SD362	150	70	8	40	5	20	100			20	140	5	5	1	1.5	5							
2SD880	60	60	7	30	3	100	60			60	300	0.5	5	1		3	70		3			500	
2SD880GR	60	60	7	30	3	100	60			150	300	0.5	5	1		3	70		3			500	
2SD880O	60	60	7	30	3	100	60			60	120	0.5	5	1		3	70		3			500	
2SD880Y	60	60	7	30	3	100	60			100	200	0.5	5	1		3	70		3			500	
BD239	55	45	5	30	2			200	45	40	15	0.2	4	0.7		1			3			200	
BD239A	70	60	5	30	2			200	60	40	15	0.2	4	0.7		1			3			200	
BD239B	90	80	5	30	2			200	80	40	15	0.2	4	0.7		1			3			200	
BD239C	115	100	5	30	2			200	100	40	15	0.2	4	0.7		1			3			200	
BD241	## 55	45	5	40	3			200	45	25	10	1	4	1.2		3			3			500	
BD241A	## 70	60	5	40	3			200	60	25	10	1	4	1.2		3			3			500	
BD241B	## 90	80	5	40	3			200	80	25	10	1	4	1.2		3			3			500	
BD241C	## 115	100	5	40	3			200	100	25	10	1	4	1.2		3			3			500	
BD243	45	45	5	65	6			400	45	30	15	0.3	4	1.5		6			3			500	
BD243A	60	60	5	65	6			400	60	30	15	0.3	4	1.5		6			3			500	

NOTE : V_{CES}

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