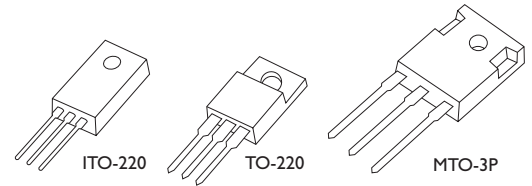


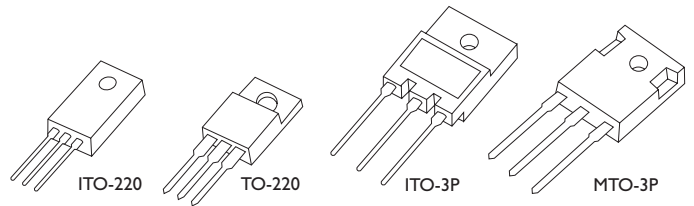
HIGH VOLTAGE • HIGH SPEED SWITCHING TRANSISTORS



HDT series

Bipolar transistors (NPN)

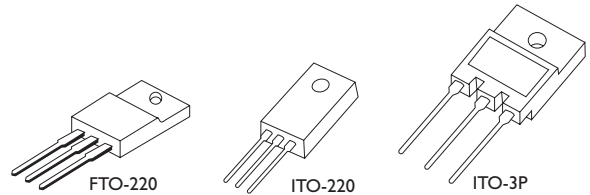
Type No.	Absolute Maximum Ratings								Electrical Characteristics									Outline		
	V _{RM}	V _{CEO}	V _{EBO}	I _C	I _B	P _T	T _{stg}	T _J	V _{CEO} (sus) (min)	h _{FE} (min)	V _{CE} (sat) (max)	V _{BE} (sat) (max)	θ _{JC} (max)	f _T (typ)	t _{on} (max)	t _s (max)	t _f (max)	Package	Figure	
	[V]	[V]	[V]	[A]	[A]	[W]	[°C]	[°C]	[V]	(min)	[V]	[V]	[°C/W]	[MHz]	[μs]	[μs]	[μs]			
2SC4310	900	800	7	6	3	50	-55	150	800	7	1.5	2.5	2.5	7	0.5	3	0.5	TO-220	80-3	
4311						40							3.1					TO-220	82-4	
4312						80							1.56					MTO-3P	86-2	
4313				10	4	100							150							1.25
4314				15	6	130							0.96							



HFX series

Bipolar transistors (NPN)

Type No.	Absolute Maximum Ratings								Electrical Characteristics									Outline					
	V _{RM}	V _{CEO}	V _{EBO}	I _C	I _B	P _T	T _{stg}	T _J	V _{CEO} (sus) (min)	h _{FE} (min)	V _{CE} (sat) (max)	V _{BE} (sat) (max)	θ _{JC} (max)	f _T (typ)	t _{on} (max)	t _s (max)	t _f (max)	Package	Figure				
	[V]	[V]	[V]	[A]	[A]	[W]	[°C]	[°C]	[V]	(min)	[V]	[V]	[°C/W]	[MHz]	[μs]	[μs]	[μs]						
2SC4230	1200	800	7	2	1	50	-55	150	800	8	1	1.5	2.5	8	0.5	3.5	0.3	TO-220	80-3				
4231						30							4.16					ITO-220	82-4				
4232						70							1.7					MTO-3P	86-2				
4233				3	3	100							60					150	2.08	TO-220	80-3		
4234													45						2.77			ITO-220	82-4
4235													80						1.56			MTO-3P	86-2
4236				6	3	1.25																	
4237				10	4	150							0.83										
4583				3	1	50							2.5					ITO-3P	88-3				
4584				6	3	65							1.92										
4585				10	4	85							1.47										



Switching Transistors for Lighting Equipment

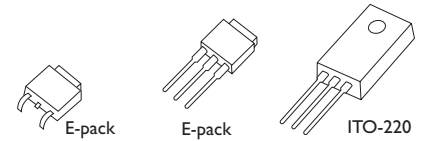
Bipolar transistors (NPN)

Type No.	Absolute Maximum Ratings								Electrical Characteristics									Outline	
	V _{RM}	V _{CEO}	V _{EBO}	I _C	I _B	P _T	T _{stg}	T _J	V _{CEO} (sus) (min)	h _{FE} (min)	V _{CE} (sat) (max)	V _{BE} (sat) (max)	θ _{JC} (max)	f _T (typ)	t _{on} (max)	t _s (max)	t _f (max)	Package	Figure
	[V]	[V]	[V]	[A]	[A]	[W]	[°C]	[°C]	[V]	(min)	[V]	[V]	[°C/W]	[MHz]	[μs]	[μs]	[μs]		
2SC4940	1200	550	7	4	2	30	-55	150	550	10	1	1.5	4.16	10	0.8	3.0	0.3	ITO-220	82-4
4941	1500	800		6	3	65	1		800	15	0.5		1.92	8	0.5	3.5		ITO-3P	88-3
5382	1200	550		9	4	40	150		550	10	1		3.13	—	1.3	4.0		FTO-220	84-3

LOW SATURATION VOLTAGE SWITCHING TRANSISTORS

LSV series

Bipolar transistors

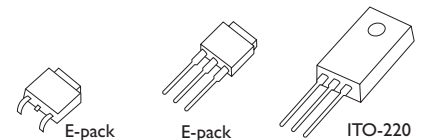


Type No.	Absolute Maximum Ratings								Electrical Characteristics								Outline			
	V _{CB0}	V _{CEO}	V _{EB0}	I _C	I _B	P _T	T _{stg}	T _J	V _{CEO} (sus) (min)	h _{FE} (min)	V _{CE} (sat) (max)	V _{BE} (sat) (max)	θ _{JC} (max)	f _r (typ)	t _{on} (max)	t _s (max)	t _f (max)	Package	Figure	
	[V]	[V]	[V]	[A]	[A]	[W]	[°C]	[°C]	[V]	(min)	[V]	[V]	[°C/W]	[MHz]	[μs]	[μs]	[μs]			
2SA1795	-60	-40	-7	-5	-1.5	10	-55 ↕ 150	150	-40	70	-0.3	-1.2	12.5	50	0.3	1.5	0.5	E-pack	*1	
1796				-7		12.5														
1679				-5		5														
1598				-7	5															
1599				-10	5															
1600				-12	4.16															
1601				-15	2.77															
2SC4668	60	40	7	7	1.5	10	-55 ↕ 150	150	40	70	0.3	1.2	12.5	50	0.3	1.5	0.5	E-pack	*1	
4669				10		12.5														
4148				7		5														
4149				10	5															
4150				12	5															
4151				15	4.16															
4876				30	2.78															
				2	30															
				4	45					100										

*1: Leaded package - Fig. 78-3; SMD package - Fig. 77-3

HSV series

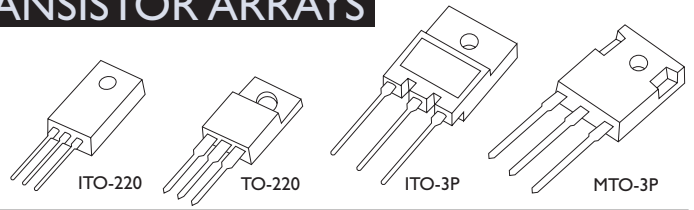
Bipolar transistors



Type No.	Absolute Maximum Ratings								Electrical Characteristics								Outline		
	V _{CB0}	V _{CEO}	V _{EB0}	I _C	I _B	P _T	T _{stg}	T _J	V _{CEO} (sus) (min)	h _{FE} (min)	V _{CE} (sat) (max)	V _{BE} (sat) (max)	θ _{JC} (max)	f _r (typ)	t _{on} (max)	t _s (max)	t _f (max)	Package	Figure
	[V]	[V]	[V]	[A]	[A]	[W]	[°C]	[°C]	[V]	(min)	[V]	[V]	[°C/W]	[MHz]	[μs]	[μs]	[μs]		
2SA1876	-80	-80	-7	-3	-1.5	10	-55 ↕ 150	150	-80	70	-0.3	-1.2	12.5	50	0.3	1.5	0.2	E-pack	*1
1877				-5		5													
1878				-7		5													
1879				-7	5														
1880				-10	5														
2SC4978	100	80	7	3	1.5	10	-55 ↕ 150	150	80	70	0.3	1.2	12.5	50	0.3	1.5	0.2	E-pack	*1
4979				5		5													
4980				7		5													
4981				7	5														
4982				10	5														

*1: Leaded package - Fig. 78-3; SMD package - Fig. 77-3

DARLINGTON TRANSISTORS & TRANSISTOR ARRAYS



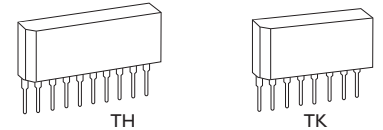
Darlington Power Transistors

Bipolar transistors

Type No.	Absolute Maximum Ratings								Electrical Characteristics								Outline		
	V _{CB0}	V _{CE0}	V _{EB0}	I _C	I _B	P _T	T _{stg}	T _J	V _{CE0} (sus) (min)	h _{FE} (min)	V _{CE} (sat) (max)	V _{BE} (sat) (max)	θ _{JC} (max)	f _r (typ)	t _{on} (max)	t _s (max)	t _f (max)	Package	Figure
	[V]	[V]	[V]	[A]	[A]	[W]	[°C]	[°C]	[V]	(min)	[V]	[V]	[°C/W]	[MHz]	[μs]	[μs]	[μs]		
2SD1022	100	100	7	5	0.5	30	-55	150	—	1500	1.5	2	4.17	20	2	5	3	TO-220	80-3
1023	200	200														8	5		
1024	100	100	7	8	0.5	50	150	—	1500	1.5	2	2.5	20	2	5	3	MTO-3P	86-2	
1025	200	200													8	5			
1026	100	100	7	15	1	100	150	—	1500	1.5	2	1.25	20	2	5	3	ITO-3P	88-3	
1027	200	200													8	5			
2196	200	200	7	±4	0.3	25	-55	150	—	1500	1.5	2	5.0	20	2	12	5	ITO-220	82-4
1788	100	100														7	7		
1789	200	200	7	7	0.5	30	150	—	1500	1.5	2	2.5	20	2	12	5	MTO-3P	86-2	
1790	60 ^{±10}	60 ^{±10}													7	10			0.5
1791	100	100	7	10	0.5	50	150	—	1500	1.5	2	2.5	10	2	15	15	ITO-3P	88-3	
1792	200	200													15	15			
1793	100	100	7	10	0.5	50	150	—	1500	1.5	2	2.5	10	2	15	15	ITO-3P	88-3	
1794	200	200													15	15			
1795	500	400	12	10	0.5	50	150	400	150	1.5	2	2.5	10	2	15	15	ITO-3P	88-3	
2SB1282	-100	-100	-7	±4	-0.3	25	-55	150	—	1500	-1.5	-2	5	20	1	4			2
1283				-7	-0.5	30							4.16						
1284				-10	-0.8	35							3.57						
1285				-15	-1	100							1.25						
1448				-15	-1	65							1.92						

Transistor Arrays

Bipolar transistors Arrays



Type No.	Absolute Maximum Ratings								Electrical Characteristics								Remarks	Outline	
	V _{CB0}	V _{CE0}	V _{EB0}	I _C	I _B	P _T	T _{stg}	T _J	h _{FE} (min)	V _{CE} (sat) (max)	V _{BE} (sat) (max)	θ _{JA} (max)	t _{on} (max)	t _s (max)	t _f (max)	Package		Figure	
	[V]	[V]	[V]	[A]	[A]	[W]	[°C]	[°C]	(min)	[V]	[V]	[°C/W]	[μs]	[μs]	[μs]				
TH3L10	100	100	7	±3	0.3	3.5	-55~150	150	1500	1.5	2	35	2	8	3	NPNX4	TH	65	
3L20	200	200																	±0.3
3C10	±100	±100	±7	±3	±0.3	3.5	-55~150	150	1500	±1.5	±2	35	2	8	3	NPNX2, PNPX2	TH	65	
3J10	-100	-100																	-7
3L10Z*	60 ^{±10}	60 ^{±10}	7	5	0.3	3.5	-55~150	150	1500	1.5	2	35	2	8	3	NPNX4	TH	65	
5L10	100	100																	7
5L20	200	200	7	5	0.3	3.5	-55~150	150	1500	1.5	2	35	2	8	3	NPNX4	TH	65	
TH3L10	100	100																	7
3L20	200	200	7	±3	0.3	2.5	-55~150	150	1500	1.5	2	50	2	8	3	NPNX3	TK	66	
3J10	-100	-100																	-7
3L10Z*	60 ^{±10}	60 ^{±10}	7	5	0.3	2.5	-55~150	150	1500	1.5	2	50	2	8	3	NPNX3	TK	66	
5L10	100	100																	7
5L20	200	200	7	5	0.3	2.5	-55~150	150	1500	1.5	2	50	2	8	3	NPNX3	TK	66	
TH5P4	±60	±40																	±7

*: With zener diode between collector and base