Bipolar Power Product Selection Guide

Efficient, Reliable and Green

Thyristors

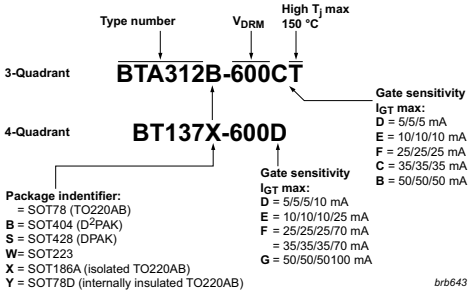
4-Quadrant Triacs

$I_{T(RMS)}$ (A)	V_{DRM} (V)	I_{GT} (max) (mA)	SOT54 (TO92)	SOT78 (TO220AB)	SOT78D (internally insulated TO220AB)	SOT82	SOT186A (isolated TO220AB)	SOT223	SOT404 (D^2PAK)	SOT428 (DPAK)
										
0.6	400	5/5/5/7	MAC97A6							
	600	5/5/5/7	MAC97A8							
	400 / 600	5/5/5/7	BT1306-D							
0.8	400 / 600	5/5/5/7	BT1308-D					BT1308W-D		
	600	5/5/5/7	Z00607MA							
1	600	3/3/3/7						BT131W		
	600 / 800	3/3/3/7	BT131							
	600 / 800	5/5/5/7	BT131-D							
	600 / 800	10/10/10/10	BT131-E							
	600 / 800	3/3/3/5	Z0103MA/NA					Z0103MN/NN		
	600 / 800	5/5/5/7	Z0107MA/NA					Z0107MN/NN		
	600 / 800	10/10/10/10	Z0109MA/NA					Z0109MN/NN		
	600 / 800	3/3/3/5	Z0103MA0/NA0**					Z0103MN0/NN0**		
	600 / 800	5/5/5/7	Z0107MA0/NA0**					Z0107MN0/NN0**		
	600 / 800	10/10/10/10	Z0109MA0/NA0**					Z0109MN0/NN0**		
	600	5/5/5/10	BT132-D*							
4	600	D/E/-/G				BT134				
	800	E/-				BT134				
	600	D/-		BT136			BT136X			BT136S
	600	F					BT136X			BT136S
	600 / 800	E		BT136			BT136X		BT136B	BT136S
	800	F								BT136S
	800	-					BT136X			BT136S
6	600	F/-/G					BT236X			
	800	-/G					BT236X			
8	600	D/-/G		BT137			BT137X			BT137S
	600	E		BT137			BT137X		BT137B	BT137S
	600	F					BT137X		BT137B	BT137S
	800	E		BT137			BT137X			BT137S
	800	F							BT137B	BT137S
	800	-		BT137			BT137X		BT137B	
	800	G							BT137B	BT137S
12	600	D		BT138			BT138X			
	600	-/G		BT138			BT138X		BT138B	
	600	F					BT138X		BT138B	
	600 / 800	E		BT138	BT138Y		BT138X		BT138B	
	800	F					BT138X			
	800	-		BT138			BT138X			
	800	G		BT138						
16	600	E/-		BT139			BT139X		BT139B	
	600	F					BT139X		BT139B	
	600	G					BT139X		BT139B	
	800	E		BT139					BT139B	
	800	F							BT139B	
	800	-		BT139			BT139X		BT139B	
	800	G		BT139					BT139B	
20	600	50/50/50/75					MAC223A8X			
25	400	50/50/50/75		MAC223A6						
	600 / 800	-		BTA140						

I_{GT} key:
D 5 mA (10 mA in3+)
E 10 mA (25 mA in 3+)
F 25 mA (70 mA in 3+)
- 35 mA (70 mA in 3+)
G 50 mA (100 mA in 3+)

* Large chip / high I_{TSM}
** Enhanced immunity to false triggering

Triacs part numbering



Thyristors

3-Quadrant Triacs

types in **bold red** represent new products

I_{GT} key:
D 5 mA (10 mA in3+)
E 10 mA (25 mA in 3+)
F 25 mA (70 mA in 3+)
- 35 mA (70 mA in 3+)
G 50 mA (100 mA in 3+)

$I_{T(RMS)}$ (A)	V_{DRM} (V)	I_{GT} (max) (mA)	SOT54 (TO92)	SOT78 (TO220AB)	SOT78D (internally insulated TO220AB)	SOT186A (isolated TO220AB)	SOT223	SOT404 (D^2PAK)	SOT428 (DPAK)
									
0.8	600 / 800	D/E	BTA2008						
1	600 / 800	B/E/ER	BTA201						
	600 / 800	E					BTA201W		
2	600 / 800	D/E				BTA202X			
4	600	B/C/D/E/F		BTA204		BTA204X			BTA204S
	800	B/C/E		BTA204		BTA204X			BTA204S
	1000	C				**BTA204X**			**BTA204S**
8	600	B/D/E/F		BTA208		BTA208X			BTA208S
	800	B/E		BTA208		BTA208X			BTA208S
	800	F		**BTA208**		BTA208X			**BTA208S**
	1000	B				BTA208X			
	1000	C				BTA208X		BTA208B	
	1000	5 min - 35 max				BTA208X-1000C0			
12	600	D		BTA312		BTA312X		BTA312B	
	600	CT		BTA312				BTA312B	
	600 / 800	B/C/E		BTA312		BTA312X		BTA312B	
	600 / 800	C			BTA312Y				
	800	ET		BTA312				BTA312B	
	600 / 800	B/C			BTA412Y				
16	600	BT/D		BTA316					
	600 / 800	B/C/E		BTA316		BTA316X		BTA316B	
	600 / 800	ET		BTA316					
	800	10 min - 50 max				**BTA316X-800B0**			
	600 / 800	B/C			BTA416Y				
25	600	BT		BTA225					
	600 / 800	B		BTA225				BTA225B	

Silicon Controlled Rectifiers

types in **bold red** represent new products

$I_{T(RMS)}$ (A)	V_{DRM} & V_{RRM} (V)	I_{GT} (max) (mA)	SOT54 (TO92)	SOT78 (TO220AB)	SOT82	SOT186A (isolated TO220AB)	SOT223	SOT404 (D^2PAK)	SOT428 (DPAK)	SOT533 (IPAK)
										
0.8	400	0.012	EC103D1							
	400 (V_{DRM} only)	0.2	NXL0840							
	200 / 400 / 600	0.2	BT149B/D/G							
	200 / 400 / 600	0.2	BT169B/D/G							
	400	0.05	BT169D-L							
	800	0.1	BT169H							
	500 / 600	0.02 min - 0.2 max	BT168E/G							
	200	0.2					MCR08BT1			
1	600	0.02 min - 0.2 max					BT168GW			
	600	0.07 min - 0.45 max					**BT168GWF****			
	600	0.2					BT148W-R*			
4	400 / 500 / 600	0.2			BT148-R					
	600	0.2							BT150S-R	
	500	0.2		BT150-R						
8	800	0.05							BT258S-LT	
	500 / 600 / 800	0.2		BT258-R		BT258X-R				
	600	0.2								BT258U-R
	800	0.2							BT258S-R	
	600	5							BT300S-R	
12	500 / 650	5		BT151-L					BT151S-L	
	500 / 650 / 800	15		BT151-R		BT151X-R			BT151S-R	
	650	15							BTH151S-R	
	500 / 650 / 800	15		BT151-C		BT151X-C				BT151U-C
	500 / 1000	15		**BT151-RT**						
20	400 / 600 / 800	32		BT152-R		BT152X-R		BT152B-R		
	500	32		**BT152-RT**						
25	800	35		BT145-R						

* Large chip / high I_{TSM}
** Hi-Com / fast turn-off
T: high T_j max 150 °C

Thyristors

AC Thyristors

types in **bold red** represent new products

$I_{T(RMS)}$ (A)	V_{DRM} (V)	I_{GT} (max) (mA)	SOT54 (TO92)	SOT223	SO8
					
0.2	600	D			**ACT102H**
0.8	600	D	**ACT108**	**ACT108W**	
	600	E	ACT108	ACT108W	

I_{GT} key:
D 5 mA
E 10 mA

AC Thyristor Triacs

types in ***bold red italic underline*** represent products in development

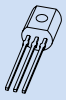
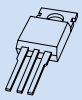
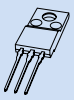
$I_{T(RMS)}$ (A)	V_{DRM} (V)	I_{GT} (max) (mA)	SOT186A	SOT428
				
2	800	E	***ACTT2X***	***ACTT2S***

I_{GT} key:
E 10 mA

High Voltage Power Bipolar Transistors

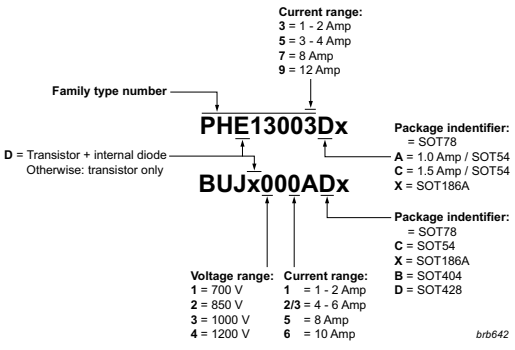
High Voltage Power Bipolar Transistors for lighting, SMPS and industrial applications

types in **bold red** represent new products

V_{CESM} (V)	$I_{C(DC)}$ (max) (A)	25 °C ind. t_f (typ) (ns)	@ I_C (A)	h_{FE} (typ)	@ I_C (A)	SOT54 (TO92)	SOT78 (TO220AB)	SOT186A (isolated TO220AB)	SOT404 (D^2PAK)	SOT428 (DPAK)
										
700	1	80	1	7.5	0.8	BUJ100LR				
	1	80	1	7.5	0.8	PHE13003A				
	1	50	1	14	0.75	BUJ100				
	1.5	100	0.5	9	1	PHE13003C				
	1.5	100	0.5	9	1	PHD13003C*				
	4	30	2	12.5	3		BUJ103A	BUJ103AX		BUJ103AD
	4	30	2	12.5	3					BUJD103AD*
	4	100	2	17	2		PHE13005	PHE13005X		
	4	100	2	17	2		PHD13005*			
	8	20	5	11	4		BUJ105A		BUJ105AB	BUJ105AD
	8	20	5	11	4					BUJD105AD*
	8	40	5	9	5		PHE13007			
	10	20	5	11	6		BUJ106A			
	12	100	5	6 min - 30 max	8		PHE13009			
850	4	30	2	12.5	3		**BUJD203A***	**BUJD203AX***		**BUJD203AD***
1000	5	145	2.5	12	3		BUJ303A	**BUJ303AX**		**BUJ303AD**
1050	4	520	2	41	0.8		**BUJ302A**	**BUJ302AX**		**BUJ302AD**
	5	200	2.5	10.5	3		BUJ303B			
1200	6	170	2.5	15.5	3		BUJ403A			

*Integrated freewheeling diode
Package drawings are not to scale

PHx/BUJx series part numbering



Power Diodes

Hyperfast power diodes

types in ***bold red italic underline*** represent products in development

V_{RRM} (V)	$I_{F(AV)}$ (A)	V_F (typ) @ 150C (V)	@ I_F (A)	t_{rr} (typ) @ 25C (ns)	SOD59 (TO220AC)	SOD113 (2-pin SOT186A)	SOT78 (TO220AB)	SOT404 (D^2PAK)
								
600	5	1.4	5	19	BYC5-600	BYC5X-600		BYC5B-600
	8	1.4	8	19	BYC8-600	BYC8X-600		BYC8B-600
	8	1.4	8	19	***BYC8D-600***	***BYC8DX-600***		
	8	2	8	12.5		BYC58X-600		
	10	1.4	10	19	BYC10-600	BYC10X-600		BYC10B-600
	2 x 5	1.4	5	19			BYC10-600CT	
	15	1.4	15	19	BYC15-600	BYC15X-600		
	20	1.4	20	19	BYC20-600	BYC20X-600		

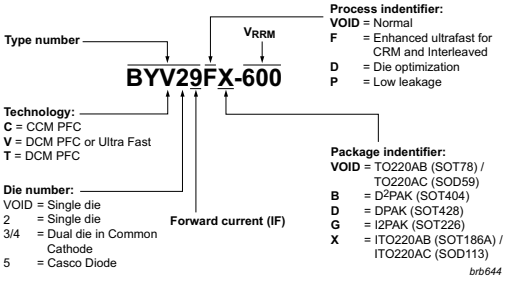
Power Diodes

Ultrafast power diodes

types in **bold red** represent new products

V_{RRM} (V)	$I_{F(AV)}$ (A)	V_F (typ) @ 150C (V)	@ I_F (A)	t_{rr} (typ) @ 25C (ns)	SOD59 (TO220AC)	SOD113 (2-pin SOT186A)	SOT78 (TO220AB)	SOT186A (isolated TO220AB)	SOT223	SOT226 (I^2PAK)	SOT404 (D^2PAK)	SOT428 (DPAK)
												
100	8	0.8	8	20	BYW29E-100							
	2 x 10	0.72	8	20			BYV32E-100					
150	2 x 0.75	0.5	0.5	10					BYV40E-150			
	8	0.8	8	20	BYW29E-150							
	2 x 10	0.72	8	20			BYV32E-150					
	2 x 15	0.78	15	20			BYV42E-150					
200	8	0.8	8	20	BYW29E-200	BYW29EX-200						BYW29ED-200
	2 x 5	0.8	5	15			BYQ28E-200	BYQ28X-200				BYQ28ED-200
	14	0.83	14	20	BYV79E-200							
	2 x 8	0.84	8	20			BYQ30E-200					
	2 x 10	0.72	8	20			BYV32E-200			**BYV32G-200**	BYV32EB-200	
	2 x 15	0.78	15	20			BYV42E-200			**BYV42G-200**	BYV42EB-200	
300	2 x 5	0.95	5	50			BYT28-300					
400	9	0.9	8	50	BYV29-400							
	2 x 10	0.87	10	50			BYV34-400					
500	9	0.9	8	50	BYV29-500	BYV29X-500					BYV29B-500	
	2 x 5	0.95	5	50			BYT28-500					
	15	0.9	15	50	BYT79-500							
	2 x 10	0.87	10	50			BYV34-500					
	2 x 15	0.95	15	50			BYV44-500					
600	5	0.97	5	50		BYV25X-600				BYV25G-600		BYV25D-600
	8	1.07	8	60	BYR29-600	BYR29X-600						
	9	0.97	8	50	BYV29-600	BYV29X-600				BYV29G-600	BYV29B-600	
	15	1	15	50	BYT79-600	BYT79X-600						
	2 x 10	0.92	10	50			BYV34-600	BYV34X-600		BYV34G-600		
	5	1.1	5	17.5	**BYV25F-600**	**BYV25FX-600**	BYV25F-600				BYV25FB-600	**BYV25FD-600**
	9	1.25	8	17.5	**BYV29F-600**	BYV29FX-600	BYV29F-600				BYV29FB-600	**BYV29FD-600**
	2 x 10	1.3	10	20			BYV410-600	BYV410X-600				
800	8	1.07	8	60	BYR29-800	BYR29X-800						

Power Diode part numbering



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