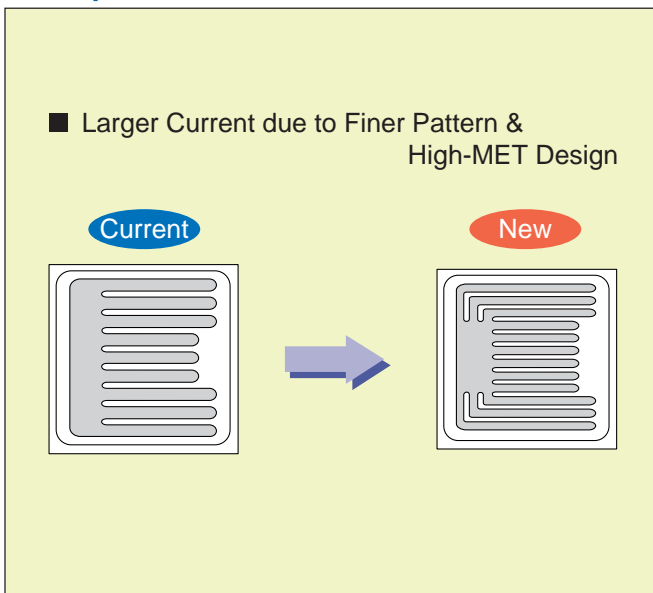


● Features

- h_{FE} linearity equivalent to that of previous products
- V_{BE} linearity equivalent to that of previous products
- Complementary
- SOA capability equivalent to that of previous products
- Thermal resistance equivalent to that of previous products

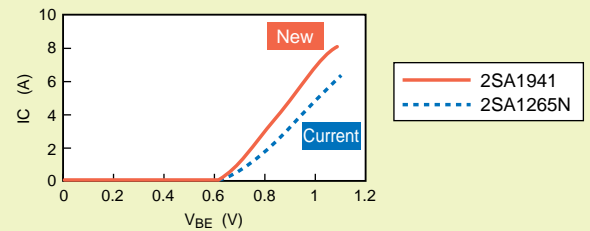
● Improvements to the New products

● Chip Size Reduction

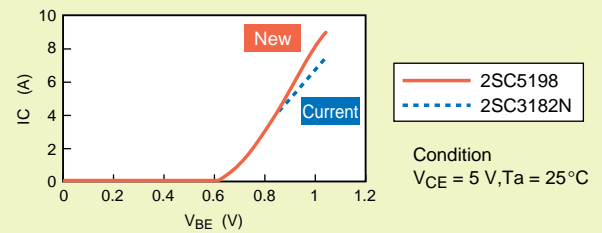


● V_{BE} Linearity

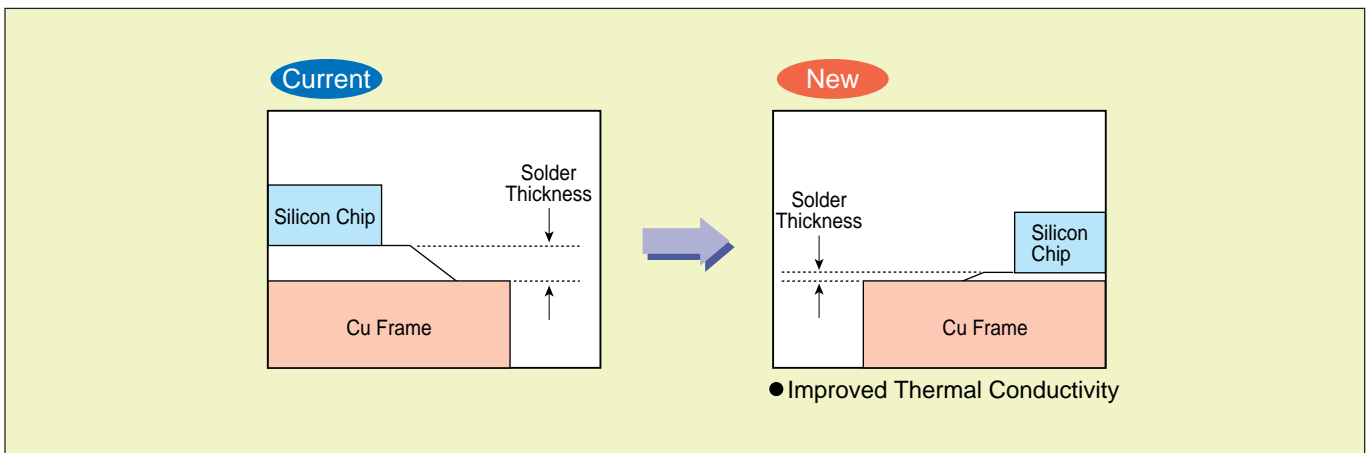
■ PNP Transistor



■ NPN Transistor



● Die Mount Solder



● Product Line

Pc (W)	Maximum Ratings		Polarity	New Product No.	Discontinued Product No.		Package No.
	V _{CEO} (V)	I _c (A)					
60	80 [100]	6	NPN	2SC5196	2SC3180N	2SD716	TO-3P(N)
			PNP	2SA1939	2SA1263N	2SB686	
80	120	8	NPN	2SC5197	2SC3181N	2SD718	TO-3P(N)
			PNP	2SA1940	2SC1264N	2SB688	
100	140	10	NPN	2SC5198	2SC3182N	2SD1148	TO-3P(N)
			PNP	2SA1941	2SA1265N	2SB863	
120	160	12	NPN	2SC5199	2SC3280		TO-3P(L)
			PNP	2SA1942	2SA1301		
130	230 [180]	15 [12]	NPN	2SC5242	2SC3907		TO-3P(N)
			PNP	2SA1962	2SA1516		
150	230	15	NPN	2SC5358			TO-3P(N)
			PNP	2SA1986			
150	230 [200]	15	NPN	2SC5200	2SC3281		TO-3P(L)
			PNP	2SA1943	2SA1302		
180	230	15	NPN	2SC5359			TO-3P(L)
			PNP	2SA1987			

[] : Maximum ratings of discontinued products

● Power Transistors for Audio Product List

	Driver Amplifier				Output Amplifier						
	Pc(W)	NPN	PNP	Package	Pc(W)	NPN	PNP	Package			
Bipolar Single	0.8	2SC1627A	2SA817A	LSTM	Non-Isolation Type	60	2SC5196	2SA1939	TO-3P(N)		
	0.9	2SC2235	2SA965			80	2SC5197	2SA1940			
	1	2SC3665	2SA1425	100		2SC5198	2SA1941	TO-3P(L)			
	5	2SC3423	2SA1630	TO-126		120	2SC5199		2SA1942		
		2SC3421	2SA1358			130	2SC5242	2SA1962	TO-3P(N)		
	15	2SC2983	2SA1225	PW MOLD		150	2SC5358	2SA1986		TO-3P(L)	
	20	2SC4793	2SA1837	TO-220(NIS)			2SC5200	2SA1943			
		2SC5171	2SA1930			180	2SC5359	2SA1987	TO-3P(L)		
	Bipolar Dalington						Isolation Type	55	2SC4688	2SA1803	TO-3P(N)IS
								70	2SC4689	2SA1804	
					80	2SC4690		2SA1805			
Non-Isolation Type		70	2SD2386	2SB1557	TO-3P(N)						
		80	2SD2387	2SB1558							
	100	2SD2384	2SB1555	TO-3P(L)							
	120	2SD2385	2SB1556								
	150	2SD2449	2SB1594								
MOSFET	25	2SK2013	2SJ313	TO-220(NIS)	Non-Isolation Type	120	2SK1529	2SJ200	TO-3P(N)		
						150	2SK1530	2SJ201	TO-3P(L)		
IGBT					180	GT20D101	GT20D201	TO-3P(L)			

Non-Isolation Type

**Toshiba America
Electronic Components, Inc.**

Headquarters-Irvine, CA
9775 Toledo Way, Irvine,
CA 92718, U.S.A.
Tel: (714)455-2000 Fax: (714)859-3963

Altamonte Springs, FL(Orland)
600 S. North Lake Blvd., Suite 250,
Altamonte Springs, FL 32701, U.S.A.
Tel: (407)332-0966 Fax: (407)339-3777

Deerfield, IL(Chicago)
One Pkwy., North, Suite 500, Deerfield,
IL 60015-2547, U.S.A.
Tel: (847)945-1500 Fax: (847)945-1044

Denver, CO
8400 E. Prentice Englewood, CO 80111, U.S.A.
Tel: (303)220-9848 Fax: (303)220-9856

Edison, NJ
2035 Lincoln Hwy. Ste. #3000, Edison
NJ 08817, U.S.A.
Tel: (908)248-8070 Fax: (908)248-8030

Irvine, CA
2 Venture Plaza, Suite 500, Irvine,
CA 92718, U.S.A.
Tel: (714)453-0224 Fax: (714)453-0125

Microelectronics Center-Sunnyvale, CA
1220 Midas Way, Sunnyvale,
CA 94088-3509, U.S.A.
Tel: (408)739-0560 Fax: (408)746-0577

Norcross, GA(Atlanta)
655 Engineering Dr. #160, Norcross,
GA 30092, U.S.A.
Tel: (404)368-0203 Fax: (404)368-0075

Richardson, TX(Dallas)
777 East Campbell Rd., Suite 650, Richardson,
TX 75081, U.S.A.
Tel: (214)480-0470 Fax: (214)235-4114

Wakefield, MA(Boston)
401 Edgewater Place, Suite #360, Wakefield,
Essex, MA 01880-6229, U.S.A.
Tel: (617)224-0074 Fax: (617)224-1095

San Jose Engineering Center, CA
1060 Rincon Circle, San Jose,
CA 95131, U.S.A.
Tel: (408)456-8900 Fax: (408)456-8910

**Toshiba Electronics
Europe GmbH**

Düsseldorf Head Office
Hansaallee 181, D-40549 Düsseldorf
Germany
Tel: (0211)5296-0 Fax: (0211)5296-400

Stuttgart Office
Buro Stuttgart, Eltinger Str.
61, D-71229 Leonberg, Germany
Tel: (07152)6045-0 Fax: (07152)6045-45

München Office
Büro München Hofmannstrasse 52,
D-81378, München, Germany
Tel: (089)748595-0 Fax: (089)748595-42

Berlin Office
Buro Berlin, Alt-Moabit 96B,
D-10559, Berlin, Germany
Tel: (030)-3999000 Fax: (030)-3999017

Toshiba Electronics France SARL
Immeuble Robert Schumann 3 Rue de Rome,
F-93561, Rosny-Sous-Bois, Cedex, France
Tel: (1)48-12-48-12 Fax: (1)48-94-51-15

Toshiba Electronics Italiana S.R.L.
Centro Direzionale Colleoni
Palazzo Perseo Ingr. 2-Piano 6,
Via Paracelso n.12,
1-20041 Agrate Brianza Milan, Italy
Tel: (039)68701 Fax:(039)6870205

Toshiba Electronics España, S.A.
Parque Empresarial San Fernando Edificio Europa,
1ª Planta, ES-28831 Madrid, Spain
Tel: (91)660-6700 Fax:(91)660-6799

Toshiba Electronics(UK) Limited
Riverside Way, Camberley Surrey,
GU15 3YA, U.K.
Tel: (01276)69-4600 Fax: (01276)69-4800

Toshiba Electronics Scandinavia AB
Gustavslundsvägen 12, 2nd Floor
S-161 15 Bromma, Sweden
Tel: (08)704-0900 Fax: (08)80-8459

**Toshiba Electronics Asia
(Singapore) Pte. Ltd.**

Singapore Head Office
460 Alexandra Rd., #21-00 PSA Bldg.,
Singapore 0511
Tel: (278)5252 Fax: (271)5155, (270)6056

Bangkok Office
135 Moo 5 Bangkadi Industrial Park, Tivanon Rd.,
Bangkadi Amphur Muang Pathumthani 12000,
Thailand
Tel: (2)501-1635 Fax: (2)501-1638

**Toshiba Electronics Trading
(Malaysia)Sdn. Bhd.**

Kuala Lumpur Head Office
Suite W1203, Wisma Consplant, No.2,
Jalan SS 16/4, Subang Jaya, 47500 Petaling Jaya,
Selangor Darul Ehsan, Malaysia
Tel: (3)731-6311 Fax: (3)731-6307

Penang Office
Suite 13-1, 13th Floor, Menard Penang Garden,
42-A, Jalan Sultan Ahmad Shah,
100 50 Penang, Malaysia
Tel: 4-226-8523 Fax: 4-226-8515

Toshiba Electronics Asia, Ltd.

Hong Kong Head Office
Level 11, Top Glory Insurance Building,
Grand Century Place,
No.193, Prince Edward Road West,
Mong Kok, Kowloon, Hong Kong
Tel: 2375-6111 Fax: 2375-0969

Seoul Branch
14/F, KEC B/D, 257-7 Yangjae-dong,
Seocho-ku, Seoul, Korea
Tel: (02)589-4334 Fax: (02)589-4302

Seoul Branch, Gumi Office
6/F, Ssangyong Investment Securities B/D,
56 Songju-dong, Gumi City
Kyeongbuk, Korea
Tel: (0645)456-7613-6 Fax: (0546)456-7617

Shenzhen Office
Rm 3010-3012, Shun Hing Square,
Di Wang Commercial Centre,
333 Shennan Road East,
Shenzhen, China, 518008
Tel: (0755)246-1582 Fax: (0755)246-1581

Shanghai Office
RM2612 26F, Rui Jin Bldg., 205 Mao Ming
South Rd., Shanghai, China
Tel: (021)64723077 Fax:(021)64727028

Tsurong Xiamen Xiangyu Trading Co., Ltd.
8N, Xiamen Sez Bonded Goods Market Building,
Xiamen, Fujian, China
Tel: (0592)562-3798 Fax:(0592)562-3799

Beijing Office
Rm 714, Beijing Fortune Building,
No.5 Dong San Huan Bei-Lu, Chao Yang District,
Beijing, China, 10004
Tel:(010)6595-8795 Fax: (010)6591-9346

**Toshiba Electronics
Taiwan Corporation**

Taipei Head Office
17F, Union Enterprise Plaza Bldg. 109
Min Sheng East Rd., Section 3, 0446 Taipei,
Taiwan R.O.C.
Tel: (02)514-9988 Fax: (02)514-7892

Kaohsiung Office
16F-A, Chung-Cheng Bldg., Chung-Cheng 3Rd.,
80027, Kaohsiung, Taiwan R.O.C.
Tel: (07)222-0826 Fax: (07)223-0046

**Toshiba Display Devices
(Thailand) Co., Ltd.**
142 Moo 5, Bangkadi Industrial Park,
Tivanon Rd., Pathumthani 12000, Thailand
Tel: (2)501-1200 Fax: (2)501-1209

The information contained herein is subject to change without notice.

The information contained herein is presented only as a guide for the applications of our products.
No responsibility is assumed by TOSHIBA for any infringements of patents or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of TOSHIBA or others.

TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

In Touch with Tomorrow
TOSHIBA

TOSHIBA CORPORATION
International Operations-Electronic Components
1-1, Shibaura 1-chome, Minato-ku, Tokyo, 105-01, Japan
Tel:(03)3457-3495 Fax: (03)5444-9431