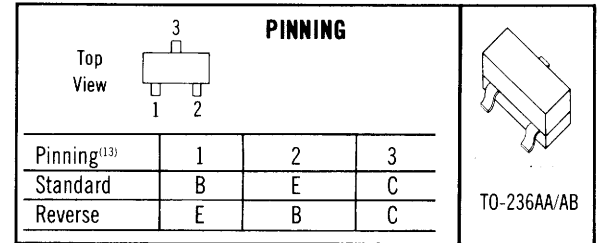


## SERIES TMPT MICROMINIATURE TRANSISTORS

- Series TMPT consists of standard Asian and U.S.A. transistor types.
- These devices are molded in TO-236AA (high profile) or TO-236AB (low profile) packages. They are intended as an alternate to conventional "chip-and-wire" hybrid assembly techniques.
- $P_D$  (Max.) = 350 mW,  $T_J = +150^\circ\text{C}$  (Max.)



FOR PACKAGE DIMENSIONS, SEE PAGE 112.

See Note 13

Catalog Number	Marking	Polarity	$V_{CB0}$	$V_{CE0}$	$V_{EB0}$	$I_{CB0}$	$V_{CB}$	$I_{EB0}$	$V_{EB}$	$h_{FE}$	$I_C$	$V_{CE}$	$V_{CESAT}$	$V_{BE(SAT)}$	$I_C$	$I_B$	$C_{ob}$	$f_T$	$I_C$	$t_{off}$	NF	
			(V) Min.	(V) Min.	(V) Min.	(nA) Max.	(V)	(nA) Max.	(V)	Min. Max.	(mA)	(V)	Max. Min.	(V) Max.	(V) Max.	(mA)	(mA)	(pF) Max.	(MHz) Min.	(mA)	(ns) Max.	(dB) Typ.
TMPT811C5	C5	PNP	-50	-45	-5	-50	-40	-50	-5	135	270	-0.5	-3	-0.3	—	-20	-2	—	50	-1	—	—
TMPT811C6	C6	PNP	-50	-45	-5	-50	-40	-50	-5	200	400	-0.5	-3	-0.3	—	-20	-2	—	50	-1	—	—
TMPT811C7	C7	PNP	-50	-45	-5	-50	-40	-50	-5	300	600	-0.5	-3	-0.3	—	-20	-2	—	50	-1	—	—
TMPT811C8	C8	PNP	-50	-45	-5	-50	-40	-50	-5	450	900	-0.5	-3	-0.3	—	-20	-2	—	50	-1	—	—
TMPT812M3	M3	PNP	-50	-40	-5	-100	-40	-100	-5	60	120	-1	-6	-0.5	—	-30	-3	—	150	-10	—	—
TMPT812M4	M4	PNP	-50	-40	-5	-100	-40	-100	-5	90	180	-1	-6	-0.5	—	-30	-3	—	150	-10	—	—
TMPT812M5	M5	PNP	-50	-40	-5	-100	-40	-100	-5	135	270	-1	-6	-0.5	—	-30	-3	—	150	-10	—	—
TMPT812M6	M6	PNP	-50	-40	-5	-100	-40	-100	-5	200	400	-1	-6	-0.5	—	-30	-3	—	150	-10	—	—
TMPT812M7	M7	PNP	-50	-40	-5	-100	-40	-100	-5	300	600	-1	-6	-0.5	—	-30	-3	—	150	-10	—	—
TMPT813S2	S2	PNP	-60	-45	-5	-100	-45	-100	-5	50	100	-50	-1	-0.5	—	-1.2	-150	-15	—	100	-10	—
TMPT813S3	S3	PNP	-60	-45	-5	-100	-45	-100	-5	75	150	-50	-1	-0.5	—	-1.2	-150	-15	—	100	-10	—
TMPT813S4	S4	PNP	-60	-45	-5	-100	-45	-100	-5	100	200	-50	-1	-0.5	—	-1.2	-150	-15	—	100	-10	—
TMPT956H3	H3	PNP	-60	-40	-5	-50	-30	-50	-4	80	130	-10	-1	-0.3	-0.65	-0.85	-10	-1	5	150	-10	270 <sup>(13)</sup>
TMPT956H4	H4	PNP	-60	-40	-5	-50	-30	-50	-4	110	170	-10	-1	-0.3	-0.65	-0.85	-10	-1	5	150	-10	270 <sup>(13)</sup>
TMPT956H5	H5	PNP	-60	-40	-5	-50	-30	-50	-4	150	240	-10	-1	-0.3	-0.65	-0.85	-10	-1	5	150	-10	270 <sup>(13)</sup>
TMPT956H6	H6	PNP	-60	-40	-5	-50	-30	-50	-4	200	320	-10	-1	-0.3	-0.65	-0.85	-10	-1	5	150	-10	270 <sup>(13)</sup>
TMPT1621B3	B3	NPN	25 <sup>(4)</sup>	20	5	100	15	100	4	60	120	1	0.5	0.25	—	0.85	10	1	—	200	10	25 <sup>(13)</sup>
TMPT1621B4	B4	NPN	25 <sup>(4)</sup>	20	5	100	15	100	4	90	180	1	0.5	0.25	—	0.85	10	1	—	200	10	25 <sup>(13)</sup>
TMPT1622D6	D6	NPN	40	35	5	50	25	50	5	200	400	0.5	3	0.5	—	—	100	10	—	100	1	—
TMPT1622D7	D7	NPN	40	35	5	50	25	50	25	300	600	0.5	3	0.5	—	—	100	10	—	100	1	—
TMPT1622D8	D8	NPN	40	35	5	50	25	50	25	450	900	0.5	3	0.5	—	—	100	10	—	100	1	—
TMPT1623L3	L3	NPN	50	40	5	100	40	100	5	60	120	0.5	3	0.5	—	—	100	10	—	100	1	—
TMPT1623L4	L4	NPN	50	40	5	100	40	100	5	90	180	0.5	3	0.5	—	—	100	10	—	100	1	—
TMPT1623L5	L5	NPN	50	40	5	100	40	100	5	135	270	0.5	3	0.5	—	—	100	10	—	100	1	—
TMPT1623L6	L6	NPN	50	40	5	100	40	100	5	200	400	0.5	3	0.5	—	—	100	10	—	100	1	—
TMPT1623L7	L7	NPN	50	40	5	100	40	100	5	300	600	0.5	3	0.5	—	—	100	10	—	100	1	—
TMPT1653N2	N2	NPN	150	130	5	100	100	100	5	50	130	15	3	0.5	—	1	10	1	6	120	15	—
TMPT1653N3	N3	NPN	150	130	5	100	100	100	5	100	220	15	3	0.5	—	1	10	1	6	120	15	—
TMPT1653N4	N4	NPN	150	130	5	100	100	100	5	150	330	15	3	0.5	—	1	10	1	6	120	15	—
TMPT1654N5	N5	NPN	180	160	5	100	100	100	5	50	130	15	3	0.5	—	1	10	1	6	120	10	—
TMPT1654N6	N6	NPN	180	160	5	100	100	100	5	100	220	15	3	0.5	—	1	10	1	6	120	10	—
TMPT1654N7	N7	NPN	180	160	5	100	100	100	5	150	330	15	3	0.5	—	1	10	1	6	120	10	—
TMPT2107G3	G3	NPN	60	40	6	50	30	50	5	80	130	10	1	0.3	0.65	0.85	10	1	4.5	200	10	250 <sup>(13)</sup>
TMPT2107G4	G4	NPN	60	40	6	50	30	50	5	110	170	10	1	0.3	0.65	0.85	10	1	4.5	200	10	250 <sup>(13)</sup>
TMPT2107G5	G5	NPN	60	40	6	50	30	50	5	150	240	10	1	0.3	0.65	0.85	10	1	4.5	200	10	250 <sup>(13)</sup>
TMPT2107G6	G6	NPN	60	40	6	50	30	50	5	200	320	10	1	0.3	0.65	0.85	10	1	4.5	200	10	250 <sup>(13)</sup>
TMPT2221	N12	NPN	60	30	5	50	50	50	3	40	120	150	10	0.4	0.6	2	150	15	8	250	20	—
TMPT2221A	N54	NPN	75	40	6	50	60	50	3	40	120	150	10	0.3	0.6	1.2	150	15	8	250	20	—

*continued on next page*

**SERIES TMPT MICROMINIATURE TRANSISTORS, continued**

Catalog Number	Marking	Polarity	$V_{CB0}$	$V_{CE0}$	$V_{EB0}$	$I_{CB0}$	$V_{CB}$	$I_{EB0}$	$V_{EB}$	$h_{FE}$		$I_C$	$V_{CE}$	$V_{CE(SAT)}$		$V_{BE(SAT)}$		$I_C$	$I_B$	$C_{cb}$	$f_T$	$I_C$	$t_{off}$	NF
			(V) Min.	(V) Min.	(V) Min.	(mA) Max.	(V) @	(mA) Max.	(V) @	Min.	Max.	@	(mA)	(V)	Max.	Min.	Max.	@	(mA)	(mA)	(pF) Max.	(MHz) Min.	@	(ns) Max.
TMPT2222	1B	NPN	60	30	5	50	50	50	3	100	300	150	10	0.4	0.6	2	150	15	8	250	20	—	—	
TMPT2222A	1P	NPN	75	40	6	50	60	50	3	100	300	150	10	0.3	0.6	1.2	150	15	8	300	20	—	4 <sup>(6)</sup>	
TMPT2484	1U	NPN	60	60	6	10	5	10	5	100	500	.01	—	0.35	—	—	1	0.1	6	60	.05	—	3 <sup>(7)</sup>	
TMPT2906	P01	PNP	-60	-40	-5	-20	-50	-50	-3	40	120	-150	-10	-0.4	—	1.3	-150	-15	8	200	50	—	—	
TMPT2906A	P12	PNP	-60	-60	-5	-10	-50	-15	-3	40	120	-150	-10	-0.3	—	1.3	-150	-15	8	200	50	—	—	
TMPT2907	2B	PNP	-60	-40	-5	-20	-50	50	3	100	300	-150	-10	-0.4	—	1.3	-150	-15	8	200	50	—	—	
TMPT2907A	2F	PNP	-60	-60	-5	-10	-50	15	3	100	300	-150	-10	-0.4	—	1.3	-150	-15	8	200	50	—	—	
TMPT3798	ABB	PNP	60	60	5	10	-50	20	-4	150	600	1	-10	-0.25	—	0.80	1	0.1	7	100	1	—	3.5	
TMPT3798A	98A	PNP	90	90	5	10	-50	20	-4	150	600	1	-10	-0.25	—	0.80	1	0.1	7	100	1	—	3.5	
TMPT3903	N72	NPN	60	40	6	50 <sup>(8)</sup>	30	—	—	50	150	10	1	0.2	0.65	0.85	10	1	4	250	10	—	6 <sup>(9)</sup>	
TMPT3904	1A	NPN	60	40	6	50 <sup>(8)</sup>	30	—	—	100	300	10	1	0.2	-0.65	-0.85	10	1	4	300	10	—	5 <sup>(9)</sup>	
TMPT3905	P26	PNP	-40	-40	-5	-50 <sup>(8)</sup>	-30	—	—	50	150	-10	-1	-0.25	-0.65	-0.85	-10	1	4.5	200	10	—	5 <sup>(9)</sup>	
TMPT3906	2A	PNP	-40	-40	-5	-50 <sup>(8)</sup>	-30	—	—	100	300	-10	-1	-0.25	0.65	0.85	-10	1	4.5	250	10	—	4 <sup>(9)</sup>	
TMPT4401	2X	NPN	60	40	6	100	35	100	35	100	300	150	1	0.4	0.75	0.95	150	15	6.5	250	20	—	—	
TMPT4402	2W	PNP	-40	-40	-5	-100	-35	—	—	50	150	-150	-3	-0.4	—	—	-150	-15	8.5	150	20	—	—	
TMPT4403	2T	PNP	-40	-40	-5	-100	-35	—	—	100	300	-150	-3	-0.4	—	—	-150	-15	8.5	200	20	—	—	
TMPT5086	2P	PNP	-60	-50	-3	-50	-35	-50	-3	150	600	-0.1	-5	-0.3	—	—	-10	-1	4	40	0.5	—	—	
TMPT5087	2Q	PNP	-60	-50	-3	-50	-35	-50	-3	250	800	-0.1	-5	-0.3	—	—	-10	-1	4	40	0.5	—	—	
TMPT5088	1Q	NPN	35	30	4.5	50	20	50	3	300	900	0.1	5	0.5	—	—	10	1	4	50	0.5	—	—	
TMPT5089	1R	NPN	30	25	4.5	50	15	100	4.5	400	1200	0.1	5	0.5	—	—	10	1	4	50	0.5	—	—	
TMPT5401	2L	PNP	-160	-150	-5	-50	-100	-50	-3	60	240	-10	-5	-0.2	—	-1	-10	-1	6	100	10	—	8 <sup>(10)</sup>	
TMPT5550	1F	NPN	160	140	6	100	100	50	4	60	250	10	5	0.15	—	1	10	1	6	100	10	—	—	
TMPT5551	1FF	NPN	180	160	6	50	120	50	4	80	250	10	5	0.15	—	1	10	1	6	100	10	—	8	
TMPT6427	1V	NPN	40	40	12	50	30	10	5	20K	200K	100	5	1.5	—	—	500	0.5	7	130	1	—	—	
TMPT6428	1K	NPN	60	50	6	10	30	10	5	250	650	1	5	0.2	—	—	10	0.5	4	100	1	—	3 <sup>(11)</sup>	
TMPT6429	1L	NPN	55	45	5	10	30	10	5	500	1250	1	5	0.2	—	—	10	0.5	3	100	1	—	—	
TMPTA05	1H	NPN	60	60	4	100	60	—	—	50	—	10	1	0.25	—	—	100	10	—	100	10	—	—	
TMPTA06	1G	NPN	80	80	4	100	80	—	—	50	—	10	1	0.25	—	—	100	10	—	100	10	—	—	
TMPTA12	3W	NPN	20	20	10	100	15	100	10	20K	—	10	5	1	—	—	10	.01	8	—	—	—	—	
TMPTA13	1M	NPN	30	30	10	100	30	100	10	10K	—	100	5	1.5	—	—	100	0.1	—	125	10	—	2 <sup>(12)</sup>	
TMPTA14	1N	NPN	30	30	10	100	30	100	10	20K	—	100	5	1.5	—	—	100	0.1	—	125	10	—	2 <sup>(12)</sup>	
TMPTA20	1C	NPN	40	40	4	100	30	—	—	40	400	5	10	0.25	—	—	10	1	4	125	5	—	—	
TMPTA42	1D	NPN	300	300	6	100	200	100	6	40	—	10	10	0.5	—	0.9	20	2	3	50	10	—	—	
TMPTA43	1E	NPN	200	200	6	100	160	100	4	40	—	10	10	0.4	—	0.9	20	2	4	50	10	—	—	
TMPTA55	2H	PNP	-60	-60	-4	-100	-60	—	—	50	—	-10	-1	-0.25	—	—	-100	-10	—	100	10	—	—	
TMPTA56	2G	PNP	-80	-80	-4	-100	-80	—	—	50	—	-10	-1	-0.25	—	—	-100	-10	—	100	10	—	—	
TMPTA63	2U	PNP	-30	-30	-10	-100	-30	-100	-10	10K	—	-100	-5	-1.5	—	—	-100	-0.1	—	125	10	—	—	
TMPTA64	2V	PNP	-30	-30	-10	-100	-30	-100	-10	20K	—	-100	-5	-1.5	—	—	-100	-0.1	—	125	10	—	—	
TMPTA70	2C	PNP	-40	-40	-4	-100	-30	—	—	40	400	-5	-10	-0.25	—	—	-10	-1	4	125	5	—	—	
TMPTA92	2D	PNP	-300	-300	-5	-250	-200	-100	-3	40	—	-10	-10	-0.5	—	-0.9	-20	-2	6	50	10	—	—	
TMPTA93	2E	PNP	-200	-200	-5	-250	-160	-100	-3	40	—	-10	-10	-0.4	—	-0.9	-20	-2	8	50	10	—	—	

- Notes: 1.  $I_C = 3$  mA,  $I_{B1} = I_{B2} = 1$  mA,  $V_{CC} = 3$  V.  
 2.  $I_C = 500$   $\mu$ A,  $V_{CE} = 6$  V,  $f = 1$  MHz,  $R_G = 500$   $\Omega$ .  
 3. Typical Value,  $I_C = 10$  mA,  $I_{B1} = 3$  mA,  $I_{B2} = 1.5$  mA,  $V_{CC} = 3$  V.  
 4.  $BV_{CES}$ .  
 5.  $T_A = +25^\circ\text{C}$ .  
 6.  $I_C = 100$   $\mu$ A,  $V_{CE} = 10$  V,  $R_S = 1$  k $\Omega$ ,  $f = 1$  kHz, BW = 200 Hz.  
 7.  $I_C = 10$   $\mu$ A,  $V_{CE} = 5$  V,  $R_S = 10$  k $\Omega$ ,  $f = 1$  kHz, BW = 200 Hz.  
 8.  $I_{CEX}$  with 3 V on Base.

9.  $I_C = 100$   $\mu$ A,  $V_{CE} = 5$  V,  $R_S = 1$  k $\Omega$ ,  $f = 10$  Hz to 15.7 kHz.  
 10.  $I_C = 250$   $\mu$ A,  $V_{CE} = 5$  V,  $R_S = 1$  k $\Omega$ ,  $f = 10$  Hz to 15.7 kHz.  
 11.  $I_C = 1$  mA,  $V_{CE} = 5$  V,  $R_S = 100$  k $\Omega$ ,  $f = 10$  Hz to 15.7 kHz.  
 12.  $I_C = 1$  mA,  $V_{CE} = 5$  V,  $R_S = 100$  k $\Omega$ ,  $f = 1$  kHz.  
 13. Available in standard and reverse pin-out. Standard pin-out catalog numbers are shown. For reverse pin-out add 'R' suffix to catalog number. Example: TMPT811C5, standard pin-out; TMPT811C5R, reverse pin-out.