



**THE DATASHEET OF  
MMSTA64T146**



# USA / European specification models types [Surface mounting type]

● UMT3 / NPN type

General purpose small signal amplifiers



UMT3 package

Product name	BV <sub>CEO</sub>	BV <sub>CEO</sub>	BV <sub>CEO</sub>	I <sub>C</sub>	I <sub>CEO</sub>	@V <sub>CE</sub>	h <sub>FE</sub>		@I <sub>C</sub>	@V <sub>CE</sub>	V <sub>CE</sub> (sat)		V <sub>BE</sub> (sat)		C <sub>ob</sub>	f <sub>r</sub>	@I <sub>C</sub>	toff	MARKING	DIE NO.
	Min. (V)	Min. (V)	Min. (V)	Max. (mA)	Max. (μV)		Min.	Max.			Max. (V)	&	Max. (V)	Max. (V)						
BC848BW	30	30	5	100	0.1	30	200	450	2	5	0.6	—	100	3	200	—	—	G1K	C22	

● UMT3 / PNP type

General purpose small signal amplifiers



UMT3 package

Product name	BV <sub>CEO</sub>	BV <sub>CEO</sub>	BV <sub>CEO</sub>	I <sub>C</sub>	I <sub>CEO</sub>	@V <sub>CE</sub>	h <sub>FE</sub>		@I <sub>C</sub>	@V <sub>CE</sub>	V <sub>CE</sub> (sat)		V <sub>BE</sub> (sat)		C <sub>ob</sub>	f <sub>r</sub>	@I <sub>C</sub>	toff	MARKING	DIE NO.
	Min. (V)	Min. (V)	Min. (V)	Max. (mA)	Max. (μV)		Min.	Max.			Max. (V)	&	Max. (V)	Max. (V)						
BC858BW	30	30	5	100	0.1	30	210	480	2	5	0.65	—	100	4.5	250	—	—	G3K	A32	

\*The minus sign (—) on PNP values has been omitted.

General purpose amplification and switching

Product name	BV <sub>CEO</sub>	BV <sub>CEO</sub>	BV <sub>CEO</sub>	I <sub>C</sub>	I <sub>CEO</sub>	@V <sub>CE</sub>	h <sub>FE</sub>		@I <sub>C</sub>	@V <sub>CE</sub>	V <sub>CE</sub> (sat)		V <sub>BE</sub> (sat)		C <sub>ob</sub>	f <sub>r</sub>	@I <sub>C</sub>	toff	MARKING	DIE NO.
	Min. (V)	Min. (V)	Min. (V)	Max. (mA)	Max. (μV)		Min.	Max.			Max. (V)	&	Max. (V)	Max. (V)						
UMT2907A	60	60	5	600	100	50	75		0.1	10	0.4	1.3	150	8	200	50	180	R2F	A31	
							100		1	10										
							100		10	10										
							100	300	150	10										
							50		500	10										
UMT3906	40	40	5	200	50	30	60		0.1	1	0.25	0.85	10	4.5	250	10	300	R2A	A38	
							80		1	1										
							100	300	10	1										
							60		50	1										
							30		100	1										
UMT4403	40	40	5	600	100	35	30		0.1	1	0.4	0.95	150	8.5	200	20	225	R2T	A31	
							60		1	1										
							100		10	1										
							100	300	150	2										
							20		500	2										

\*The minus sign (—) on PNP values has been omitted.

General purpose amplification and switching

Product name	BV <sub>CEO</sub>	BV <sub>CEO</sub>	BV <sub>CEO</sub>	I <sub>C</sub>	I <sub>CEO</sub>	@V <sub>CE</sub>	h <sub>FE</sub>		@I <sub>C</sub>	@V <sub>CE</sub>	V <sub>CE</sub> (sat)		V <sub>BE</sub> (sat)		C <sub>ob</sub>	f <sub>r</sub>	@I <sub>C</sub>	toff	MARKING	DIE NO.
	Min. (V)	Min. (V)	Min. (V)	Max. (mA)	Max. (μV)		Min.	Max.			Max. (V)	&	Max. (V)	Max. (V)						
UMT2222A	75	40	6	600	100	60	35		0.1	10	0.3	1.2	150	8	250	20	285	R1P	C31	
							50		1	10										
							75		10	10										
							100	300	150	10										
							50		150	1										
UMT3904	60	40	6	200	50	30	40		0.1	1	0.2	0.85	10	4	300	10	250	R1A	C37	
							70		1	1										
							100	300	10	1										
							60		50	1										
							30		100	1										
UMT4401	60	40	6	600	100	35	20		0.1	1	0.4	0.95	150	6.5	250	20	225	R2X	C31	
							40		1	1										
							80		10	1										
							100	300	150	1										
							40		500	2										

● SST3 - SMT3 / PNP type (cont.)



General purpose amplification and switching

SST3 package

SMT3 package

Product name		BV <sub>CEO</sub>	BV <sub>CEO</sub>	BV <sub>CEO</sub>	I <sub>CEO</sub>	@V <sub>CB</sub>	h <sub>FE</sub>		V <sub>CE</sub> (sat)		V <sub>CE</sub> (sat)	@I <sub>C</sub>	C <sub>ob</sub>	f <sub>r</sub>	@I <sub>C</sub>	f <sub>off</sub>	I <sub>C</sub>	MARKING	DIE NO.
Package	Package	Min. (V)	Min. (V)	Min. (V)	Max. (nA)		Min.	Max.	Max. (V)	Max. (V)	Max. (V)								
SST3	SMT3	(V)	(V)	(V)	(nA)	(V)	Min.	Max.	@I <sub>C</sub>	@V <sub>CE</sub>	(V)	(mA)	(pF)	(MHz)	(mA)	(ns)	(mA)		
SST2222A	MMST2222A	75	40	6	100	60	35	0.1	10				8	250	20	285	600	R1P	C31
							50	1	10										
							75	10	10										
							100	150	10										
							50	150	1										
30	500	10																	
SST3904	MMST3904	60	40	6	50 (I <sub>CES</sub> )	30	40	0.1	1				4	300	10	250	200	R1A	C37
							70	1	1										
							100	10	1										
							60	50	1										
							30	100	1										
—	MMST4124	30	25	5	50	20	120	360	2.0	1			4	300	10	—	200	RZC	C37
							60	60	50	1									
SST4401	MMST4401	60	40	6	100	35	20	0.1	1				6.5	250	20	225	600	R2X	C31
							40	1	1										
							80	10	1										
							100	150	1										
							40	500	2										

Medium power amplification

Product name		BV <sub>CEO</sub>	BV <sub>CEO</sub>	BV <sub>CEO</sub>	I <sub>CEO</sub>	@V <sub>CB</sub>	h <sub>FE</sub>		V <sub>CE</sub> (sat)		V <sub>CE</sub> (sat)	@I <sub>C</sub>	C <sub>ob</sub>	f <sub>r</sub>	@I <sub>C</sub>	f <sub>off</sub>	I <sub>C</sub>	MARKING	DIE NO.	
Package	Package	Min. (V)	Min. (V)	Min. (V)	Max. (nA)		Min.	Max.	Max. (V)	Max. (V)	Max. (V)									Max. (mA)
SST3	SMT3	(V)	(V)	(V)	(nA)	(V)	Min.	Max.	@I <sub>C</sub>	@V <sub>CE</sub>	(V)	(mA)	(pF)	(MHz)	(mA)	(ns)	(mA)			
SSTA05	—	60	60	4	100	60	100	100	10	1	0.25	1.2 (V <sub>BE(ON)</sub> )	100		100	10		500	R1H	D16
SSTA06	MMSTA06	80	80	4	100	80	100	100	10	1	0.25	1.2 (V <sub>BE(ON)</sub> )	100		100	10		500	R1G	D16

Darlington pair type

Product name		BV <sub>CEO</sub>	BV <sub>CEO</sub>	BV <sub>CEO</sub>	I <sub>CEO</sub>	@V <sub>CB</sub>	h <sub>FE</sub>		V <sub>CE</sub> (sat)		V <sub>CE</sub> (sat)	@I <sub>C</sub>	C <sub>ob</sub>	f <sub>r</sub>	@I <sub>C</sub>	NF	I <sub>C</sub>	MARKING	DIE NO.
Package	Package	Min. (V)	Min. (V)	Min. (V)	Max. (nA)		Min.	Max.	Max. (V)	Max. (V)	Max. (V)								
SST3	SMT3	(V)	(V)	(V)	(nA)	(V)	Min.	Max.	@I <sub>C</sub>	@V <sub>CE</sub>	(V)	(mA)	(pF)	(MHz)	(dB)	(mA)			
SST6427	—	40	40	12	50	30	10	100	10	5	1.2	50	7			10	500	R1J	D25
							20	200	100	5	1.5	500							
							14	140	500	5									
SSTA13	MMSTA13	(V <sub>CE(S)</sub> ) 30		10	100	30	5	10	5	5	1.5	100	10	125	10		500	R1M	D25
SSTA14	MMSTA14	(V <sub>CE(S)</sub> ) 30		10	100	30	10	10	5	5	1.5	100	10	125	10		500	R1N	D25
SSTA28	MMSTA28	(V <sub>CE(S)</sub> ) 80		12	100	60	10	10	5	5	1.5	100	8	125	10		500	RAT	D69
							10	100	5	5									

High frequency applications

Product name		BV <sub>CEO</sub>	BV <sub>CEO</sub>	BV <sub>CEO</sub>	I <sub>CEO</sub>	@V <sub>CB</sub>	h <sub>FE</sub>		V <sub>CE</sub> (sat)		V <sub>CE</sub> (sat)	@I <sub>C</sub>	C <sub>ob</sub>	f <sub>r</sub>	@I <sub>C</sub>	NF	I <sub>C</sub>	MARKING	DIE NO.	
Package	Package	Min. (V)	Min. (V)	Min. (V)	Max. (nA)		Min.	Max.	Max. (V)	Max. (V)	Max. (V)									Max. (mA)
SST3	SMT3	(V)	(V)	(V)	(nA)	(V)	Min.	Max.	@I <sub>C</sub>	@V <sub>CE</sub>	(V)	(mA)	(pF)	(MHz)	(dB)	(mA)				
SST8245	—	30	20	3	100 (I <sub>CE(S)</sub> )	18	60	150	2.5	4	0.4	1	10	1.2	600	2.5		50	R3B	C33
—	MMST918	30	15	3	100	15	20		3	1	0.4	1	10	1.7	600	4	6	50	RVX	C33

● SST3 - SMT3 / PNP type



General purpose amplification and switching (cont.)

SST3 package

SMT3 package

Product name		BV <sub>CEO</sub>	BV <sub>CEO</sub>	BV <sub>EB0</sub>	I <sub>CEO</sub>	h <sub>FE</sub>		V <sub>CE</sub> (sat)		V <sub>BE</sub> (sat)	Cob	f <sub>r</sub>	t <sub>off</sub>	I <sub>C</sub>	MARKING	DIE NO.				
Package		Min.	Min.	Min.	Max.	Min.	Max.	Max.	Max.	Max.	Max.	Min.	Max.	Max.						
SST3	SMT3	(V)	(V)	(V)	(nA)	@V <sub>CB</sub>	@I <sub>C</sub>	@V <sub>CE</sub>	(V)	(V)	(pF)	(MHz)	(ns)	(mA)						
SST3906	MMST3906	40	40	5	50 (I <sub>CE5</sub> )	30	60	0.1	1	0.25	0.85	10	4.5	250	10	300	200	R2A	A38	
							80	1	1											
							100	10	1											
							60	50	1											
							30	100	1											
-	MMST4126	25	25	4	50	20	120	360	2	1	0.4	0.95	50	4.5	250	10	200	RVZ	A38	
							60	50	1											
SST4403	MMST4403	40	40	5	100	35	30	0.1	1	0.4	0.95	150	8.5	200	20	255	600	R2T	A31	
							60	1	1											
							100	10	1											
							100	300	150											2
							20	500	2											

•The minus sign (-) on PNP values has been omitted.

Medium power amplification

Product name		BV <sub>CEO</sub>	BV <sub>CEO</sub>	BV <sub>EB0</sub>	I <sub>CEO</sub>	h <sub>FE</sub>		V <sub>CE</sub> (sat)		V <sub>BE</sub> (sat)	Cob	f <sub>r</sub>	t <sub>off</sub>	I <sub>C</sub>	MARKING	DIE NO.			
Package		Min.	Min.	Min.	Max.	Min.	Max.	Max.	Max.	Max.	Max.	Min.	Max.	Max.					
SST3	SMT3	(V)	(V)	(V)	(nA)	@V <sub>CB</sub>	@I <sub>C</sub>	@V <sub>CE</sub>	(V)	(V)	(pF)	(MHz)	(ns)	(mA)					
SSTA56	MMSTA56	80	80	4	100	80	100	10	1	0.25	1.2	100		50	100		500	R2G	B93

•The minus sign (-) on PNP values has been omitted.

Darlington pair type

Product name		BV <sub>CEO</sub>	BV <sub>CEO</sub>	BV <sub>EB0</sub>	I <sub>CEO</sub>	h <sub>FE</sub>		V <sub>CE</sub> (sat)		V <sub>BE</sub> (sat)	Cob	f <sub>r</sub>	NF	I <sub>C</sub>	MARKING	DIE NO.			
Package		Min.	Min.	Min.	Max.	Min.	Max.	Max.	Max.	Max.	Max.	Min.	@I <sub>C</sub>	(dB)	(mA)				
SST3	SMT3	(V)	(V)	(V)	(nA)	@V <sub>CB</sub>	@I <sub>C</sub>	@V <sub>CE</sub>	(V)	(V)	(pF)	(MHz)	(mA)		(mA)				
-	MMSTA64	30	30 (V <sub>CE5</sub> )	10	100	30	10k	10	5	1.5		100	7	125	10	3	300	R2V	B25

•The minus sign (-) on PNP values has been omitted.

● MPT3 / NPN type



MPT3 package

Application	Product name	V <sub>CEO</sub>	I <sub>C</sub>	P <sub>C</sub>	f <sub>r</sub>	Cob	h <sub>FE</sub>	MARKING	DIE NO.
		(V)	(A)	(W)★	(MHz)	(pF)			
Driver	BCX56	80	1	1	100	20	40~250	DF	D54

★ On 14×18×0.7mm ceramic board.

● MPT3 / PNP type



MPT3 package



Application	Product name	V <sub>CEO</sub>	I <sub>C</sub>	P <sub>C</sub>	f <sub>r</sub>	Cob	h <sub>FE</sub>	MARKING	DIE NO.
		(V)	(A)	(W)★	(MHz)	(pF)			
Driver	BCX53	80	1	1	100	20	40~250	BE	B54

•The minus sign (-) on PNP values has been omitted.


★ On 14×18×0.7mm ceramic board.

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