

APPLICATION NOTES: (A) GENERAL PURPOSE (B) LOW NOISE AMP (C) SWITCH/CHOPPER (D) VHF/UHF AMP (E) LOW LEAKAGE AMP

TEST PARAMETER					BV _{GSS}	I _{GSS}	V _{GS(OFF)}		V _{GS(ON)}		I _{DSS}		G _M	C _{ISS}	C _{RSS}	R _{DS}	E _N	T _(OFF)	APPLICATION NOTES	
UNITS					(V)	(nA)	(V)		(V)		(mA)		(mS)		(pF)	(pF)	(Ω)	nV/√Hz		(ns)
DEVICE TYPE	SOT 23 DESIGNATION	POLARITY	MARKING	PROCESS	TEST CONDITIONS AND LIMITS															
					MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MAX.	MAX.	MAX.	MAX.	TYP.	
J308	TMPFJ308	N	6C1	NJ99	I _G =1μA -25	V _{GS} =-15V 1.0	V _{DS} =-10, I _D =1nA -1.0	-6.5			V _{DS} =10V 12	60	V _{DS} =10, V _{GS} =0 8.0	V _{GS} =-10V 7.5	V _{GS} =-10V 2.5				D	
J309	TMPFJ309	N	6C2	NJ99	I _G =1μA -25	V _{GS} =-15V 1.0	V _{DS} =-10, I _D =1nA -1.0	-4.0			V _{DS} =10V 12	30	V _{DS} =10V, V _{GS} =0 10	V _{GS} =-10V 7.5	V _{GS} =-10V 2.5				D	
J310	TMPFJ310	N	6T	NJ99	I _G =1μA -25	V _{GS} =-15V 1.0	V _{DS} =-10, I _D =1nA -2.0	-6.5			V _{DS} =10V 24	60	V _{DS} =10, V _{GS} =0 8.0	V _{GS} =-10V 7.5	V _{GS} =-10V 2.5				D	
U310	TMPFU310	N	6C	NJ99	I _G =1μA -25	V _{GS} =-15V 0.15	V _{DS} =-10, I _D =1nA -2.5	-6.0			V _{DS} =10V 24	60	V _{DS} =10, V _{GS} =0 10	I _D =10mA 5.0	I _D =10mA 2.5				D	
2N3819	TMPF3819	N	6W	NJ32	I _G =1μA -25	V _{GS} =-15V 2.0	V _{DS} =15, I _D =2nA -8.0	V _{DS} =-15, I _D =200μA -0.5	-7.5	V _{DS} =15V 2	20	V _{DS} =15, V _{GS} =0 2.0	6.5	V _{DS} =15V 8.0	V _{DS} =15V 4.0				A	
2N3820	TMPF3820	P	6M	PJ32	I _G =10μA 20	V _{GS} =10 20	V _{DS} =-10, I _D =10μA 8.0	V _{DS} =-10, I _D =30μA 0.3	7.9	V _{DS} =-10V 0.3	15	V _{DS} =-10, V _{GS} =0 0.8	5	V _{DS} =-10 32	V _{DS} =-10 16				A	
2N3821	TMPF3821	N	6W1	NJ32	I _G =1μA -50	V _{GS} =-30 0.1	V _{DS} =15, I _D =0.5nA -4.0	V _{DS} =15, I _D =50μA -0.5	-2.0	V _{DS} =15V 0.5	2.5	V _{DS} =15, V _{GS} =0 1.5	4.5	V _{DS} =15 6.0	V _{DS} =15 3.0	f=10Hz 200			B	
2N3822	TMPF3822	N	6W2	NJ32	I _G =1μA -50	V _{GS} =-30 0.1	V _{DS} =15, I _D =0.5nA -6.0	V _{DS} =15, I _D =200μA -1.0	-4.0	V _{DS} =15V 2.0	10.0	V _{DS} =15, V _{GS} =0 3.0	6.5	V _{DS} =15 6.0	V _{DS} =15 3.0	f=10Hz 200			B	
2N3823	TMPF3823	N	6W3	NJ32	I _G =1μA -30	V _{GS} =-20 0.5	V _{DS} =15, I _D =0.5nA -8.0	V _{DS} =15, I _D =450μA -1.0	-7.5	V _{DS} =15V 4.0	20.0	V _{DS} =15, V _{GS} =0 3.5	6.5	V _{DS} =15 6.0	V _{DS} =15 2.0				D	
2N3824	TMPF3824	N	6W4	NJ32	I _G =1μA -50	V _{GS} =-30 0.1	V _{DS} =15, I _D =0.1nA -8.0			V _{DS} =15V 12.0	24.0			V _{DS} =15 6.0	V _{DS} =15 3.0	V _{GS} =0 250			C	
2N3993	TMPF3993	P	6P	PJ99	I _G =1μA 25	V _{GS} =-15 1.2	V _{DS} =-10, I _D =1.2nA 10	V _{DS} =10, I _D =1μA 4	9.5	V _{DS} =-10V 10		V _{DS} =-10, V _{GS} =0 6	12	V _{DS} =-10 16	V _{GS} =10 4.5	V _{GS} =0 150			C	
2N3994	TMPF3994	P	6P1	PJ99	I _G =1μA 25	V _{GS} =15 1.2	V _{DS} =-10, I _D =1.2nA 6.0	V _{DS} =10, I _D =1mA 1.0	5.5	V _{DS} =-10V 2		V _{DS} =-10, V _{GS} =0 4	10	V _{DS} =-10 16	V _{GS} =6V 5	V _{GS} =0 300			C	
2N4091	TMPF4091	N	6N	NJ132	I _G =1μA -40	V _{GS} =-20 0.2	V _{DS} =20, I _D =1nA -5	V _{DS} =0.2, I _D =6.6mA 0		V _{DS} =20V 30				V _{DS} =20 16	V _{GS} =-20 5	V _{GS} =0 30	V _{GS} =0 10		C	
2N4092	TMPF4092	N	6N1	NJ132	I _G =1μA -40	V _{GS} =-20 0.2	V _{DS} =20, I _D =1nA -2	V _{DS} =0.2, I _D =4mA 0	15					V _{DS} =20 16	V _{GS} =-20 5	V _{GS} =0 50	V _{GS} =0 18		C	
2N4093	TMPF4093	N	6N2	NJ132	I _G =1μA -40	V _{GS} =-20 0.2	V _{DS} =20, I _D =1nA -1	V _{DS} =0.2, I _D =2.5mA 0	8					V _{DS} =20 16	V _{GS} =-20 5	V _{GS} =0 80	V _{GS} =0 31		C	
2N4117	TMPF4117	N	6R	NJ01	I _G =1μA -40	V _{GS} =-20 0.01	V _{DS} =10, I _D =1nA -0.6	I _D =1.8		V _{DS} =10V 0.03	0.09	V _{DS} =10, V _{GS} =0 0.02	0.21	V _{DS} =10V 3.0	V _{DS} =10V 1.5				E	
2N4118	TMPF4118	N	6R1	NJ01	I _G =1μA -40	V _{GS} =-20 0.01	V _{DS} =10, I _D =1nA 1.0	I _D =3.0		V _{DS} =10V 0.08	0.24	V _{DS} =10, V _{GS} =0 0.08	0.25	V _{DS} =10V 3.0	V _{DS} =10V 1.5				E	
2N4119	TMPF4119	N	6R2	NJ01	I _G =1μA -40	V _{GS} =-20 0.01	V _{DS} =10, I _D =1nA 2.0	I _D =6.0		V _{DS} =10V 0.20	0.60	V _{DS} =10, V _{GS} =0 0.10	0.33	V _{DS} =10V 3.0	V _{DS} =10V 1.5				E	
2N4338	TMPF4338	N	6S	NJ16	I _G =1μA -50	V _{GS} =-30 0.10	V _{DS} =15, I _D =0.1nA -0.3	I _D =-1.0		V _{DS} =15V 0.20	0.60	V _{DS} =15, V _{GS} =0 0.6	1.8	V _{DS} =15V 7.0	V _{DS} =15V 3.0	f=1kHz 68			A	
2N4339	TMPF4339	N	6S1	NJ16	I _G =1μA -50	V _{GS} =-30 0.10	V _{DS} =15, I _D =0.1nA -0.6	I _D =-1.8		V _{DS} =15V 0.50	1.5	V _{DS} =15, V _{GS} =0 0.8	2.4	V _{DS} =15V 7.0	V _{DS} =15V 3.0	f=1kHz 68			A	
2N4340	TMPF4340	N	6S2	NJ16	I _G =1μA -50	V _{GS} =-30 0.10	V _{DS} =15, I _D =0.1nA -1.0	I _D =-3.0		V _{DS} =15V 1.2	3.6	V _{DS} =15, V _{GS} =0 1.3	3.0	V _{DS} =15V 7.0	V _{DS} =15V 3.0	f=1kHz 68			A	
2N4341	TMPF4341	N	6S3	NJ16	I _G =1μA -50	V _{GS} =-30 0.10	V _{DS} =15, I _D =0.1nA -2.0	I _D =-6.0		V _{DS} =15V 3.0	9.0	V _{DS} =15, V _{GS} =0 2.0	4.0	V _{DS} =15V 7.0	V _{DS} =15V 3.0	f=1kHz 68			A	
2N4391	TMPF4391	N	6J	NJ132	I _G =1μA -40	V _{GS} =-20 0.10	V _{DS} =20, I _D =1nA -4.0	I _D =-10.0	V _{DS} =0.4, I _D =12mA 0	V _{DS} =20V 50	150			V _{DS} =20V 14	V _{GS} =-12V 3.5	V _{GS} =0 30	V _{GS} =-12V 10		C	
2N4392	TMPF4392	N	6K	NJ132	I _G =1μA -40	V _{GS} =-20 0.10	V _{DS} =20, I _D =1nA -2.0	I _D =-5.0	V _{DS} =0.4, I _D =6mA 0	V _{DS} =20V 25	75			V _{DS} =20V 14	V _{GS} =-7V 3.5	V _{GS} =0 60	V _{GS} =-7V 18		C	
2N4393	TMPF4393	N	6G	NJ132	I _G =1μA -40	V _{GS} =-20 0.10	V _{DS} =20, I _D =1nA -0.5	I _D =-3.0	V _{DS} =0.4, I _D =3mA 0	V _{DS} =20V 5	30			V _{DS} =20V 14	V _{GS} =-5V 3.5	V _{GS} =0 100	V _{GS} =-5V 31		C	
2N4416	TMPF4416	N	6A	NJ26	I _G =1μA -30	V _{GS} =-20 0.10	V _{DS} =15, I _D =1nA -6.0	V _{DS} =15V, I _D =0.5mA -1.0	I _D =-5.5	V _{DS} =15V 5	15	V _{DS} =15, V _{GS} =0 4.5	7.5	V _{DS} =15V 4.0	V _{DS} =15V 0.8				D	
2N4416A	TMPF4416A	N	6A2	NJ26	I _G =1μA -35	V _{GS} =-20 0.10	V _{DS} =15, I _D =1nA -2.5	I _D =-6.0	V _{DS} =15V, I _D =0.5mA -1.0	V _{DS} =15V 5	15	V _{DS} =15, V _{GS} =0 4.5	7.5	V _{DS} =15V 4.0	V _{DS} =15V 0.8				D	
2N4856	TMPF4856	N	6V	NJ132	I _G =1μA -40	V _{GS} =-20 0.25	V _{DS} =15, I _D =0.5nA -4.0	I _D =-10	V _{DS} =0.75V, I _D =20mA 0	V _{DS} =15V 50				V _{DS} =-10V 18	V _{GS} =-10V 8.0	V _{GS} =0 25	V _{GS} =-10V 10		C	
2N4857	TMPF4857	N	6V1	NJ132	I _G =1μA -40	V _{GS} =-20 0.25	V _{DS} =15, I _D =0.5nA -2.0	I _D =-6.0	V _{DS} =0.5V, I _D =10mA 0	V _{DS} =15V 20	100			V _{DS} =-10V 18	V _{GS} =-10V 8.0	V _{GS} =0 40	V _{GS} =-6V 18		C	
2N4858	TMPF4858	N	6V2	NJ132	I _G =1μA -40	V _{GS} =-20 0.25	V _{DS} =15, I _D =0.5nA -0.8	I _D =-4.0	V _{DS} =0.5V, I _D =5mA 0	V _{DS} =15V 8	80			V _{DS} =-10V 18	V _{GS} =-10V 8.0	V _{GS} =0 60	V _{GS} =-4V 31		C	
2N4859	TMPF4859	N	6V3	NJ132	I _G =1μA -30	V _{GS} =-15 0.25	V _{DS} =15, I _D =0.5nA -4.0	I _D =-10	V _{DS} =0.5V, I _D =20mA 0	V _{DS} =15V 50				V _{DS} =-10V 18	V _{GS} =-10V 8.0	V _{GS} =0 25	V _{GS} =-10V 10		C	

APPLICATION NOTES: (A) GENERAL PURPOSE (B) LOW NOISE AMP (C) SWITCH/CHOPPER (D) VHF/UHF AMP (E) LOW LEAKAGE AMP

TEST PARAMETER					BV _{GSS}	I _{GSS}	V _{GS(OFF)}		V _{GS(ON)}		I _{DSS}		G _M		C _{ISS}	C _{RSS}	R _{DS}	E _N	T _(OFF)	APPLICATION NOTES	
UNITS		POLARITY	MARKING	PROCESS	(V)	(nA)	(V)		(V)		(mA)		(mS)		(pF)	(pF)	(OHMS)	nV/Hz ^{1/2}	(ns)		
DEVICE TYPE	SOT 23 DESIGNATION				TEST CONDITIONS AND LIMITS																
					MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MAX.	MAX.	MAX.	MAX.	TYP.		
2N4860	TMPF4860	N	6F	NJ132	I _G =1μA -30	V _{GS} =-15 0.25	V _{DS} =15, I _D =0.5nA -4.0 -10		V _{DS} =0.5V, I _D =10mA 0		V _{DS} =15V 50				V _{DS} =-10V 18	V _{DS} =-10V 8.0	V _{GS} =0 25		V _{GS} =-6V 10	C	
2N4861	TMPF4861	N	6F1	NJ132	I _G =1μA -30	V _{GS} =-15 0.25	V _{DS} =15, I _D =0.5nA -0.8 -4.0		V _{DS} =0.5V, I _D =5mA 0		V _{DS} =15V 8 80				V _{DS} =-10V 18	V _{GS} =-10V 8.0	V _{GS} =0 60		V _{GS} =-4V 31	C	
2N5114	TMPF5114	P	6P2	PJ99	I _G =1μA 30	V _{GS} =20V 0.50	V _{DS} =-15, I _D =1.0nA 5.0 10				V _{DS} =15V 30 90				V _{DS} =-15V 25	V _{GS} =-12V 7	V _{GS} =0 75		17	C	
2N5115	TMPF5115	P	6P3	PJ99	I _G =1μA 30	V _{GS} =20V 0.50	V _{DS} =-15, I _D =1.0nA 3.0 6.0				V _{DS} =15V 16 60				V _{DS} =-15V 25	V _{GS} =-7V 7	V _{GS} =0 100		30	C	
2N5116	TMPF5116	P	6P4	PJ99	I _G =1μA 30	V _{GS} =20V 0.50	V _{DS} =-15, I _D =1.0nA 1.0 4.0				V _{DS} =15V 5 25				V _{DS} =-15V 25	V _{GS} =-5V 7	V _{GS} =0 150		48	C	
2N5387	TMPF5387	N	6X	NJ26L	I _G =1μA -25	V _{GS} =-15V 0.10	V _{DS} =10, I _D =1.0nA -1.0 -6.0				V _{DS} =10V 10 30		V _{DS} =10V, I _D =10mA 6 10		I _D =10mA 5.0	I _D =10mA 1.2				D	
2N5388	TMPF5388	N	6X1	NJ26L	I _G =1μA -25	V _{GS} =-15V 0.10	V _{DS} =10, I _D =1.0nA -1.0 -6.0				V _{DS} =10V 5 40		V _{DS} =10V, V _{GS} =0 5.5 10		V _{DS} =10V 5.5	V _{DS} =10V 1.3				D	
2N5457	TMPF5457	N	6D	NJ32	I _G =1μA -25	V _{GS} =-15V 1.0	V _{DS} =10V, I _D =10nA -0.5 -6.0				V _{DS} =15V 1 5		V _{DS} =15V, V _{GS} =0 2.0 5.0		V _{DS} =15V 7.0	V _{DS} =15V 3.0				A	
2N5458	TMPF5458	N	6D1	NJ32	I _G =1μA -25	V _{GS} =-15V 1.0	V _{DS} =15V, I _D =10nA -1.0 -7.0				V _{DS} =15V 2 9		V _{DS} =15V, V _{GS} =0 1.5 5.5		V _{DS} =15V 7.0	V _{DS} =15V 3.0				A	
2N5459	TMPF5459	N	6L	NJ32	I _G =1μA -25	V _{GS} =-15V 1.0	V _{DS} =15V, I _D =10nA -2.0 -8.0				V _{DS} =15V 4 16		V _{DS} =15V, V _{GS} =0 2.0 6.0		V _{DS} =15V 7.0	V _{DS} =15V 3.0				A	
2N5460	TMPF5460	P	6E	PJ32	I _G =10μA 40	V _{GS} =20V 5.0	V _{DS} =-15V, I _D =1nA .75 6.0		V _{DS} =-15, I _D =100mA 0.5 4.0		V _{DS} =-15V 1 5		V _{DS} =-15V, V _{GS} =0 1.0 4.0		V _{DS} =-15V 7.0	V _{DS} =-15V 2.0	V _{GS} =0 2000	f=100Hz 115		A	
2N5461	TMPF5461	P	6E1	PJ32	I _G =10μA 40	V _{GS} =20V 5.0	V _{DS} =-15V, I _D =1nA 1.0 7.5		V _{DS} =-15, I _D =200mA 0.8 4.5		V _{DS} =-15V 2 9		V _{DS} =-15V, V _{GS} =0 1.5 5.0		V _{DS} =-15V 7.0	V _{DS} =-15V 2.0	V _{GS} =0 800	f=100Hz 115		A	
2N5462	TMPF5462	P	6E2	PJ32	I _G =10μA 40	V _{GS} =20V 5.0	V _{DS} =-15V, I _D =1nA 1.8 9.0		V _{DS} =-15, I _D =400mA 1.5 6.0		V _{DS} =-15V 4 16		V _{DS} =-15V, V _{GS} =0 2.0 6.0		V _{DS} =-15V 7.0	V _{DS} =-15V 2.0	V _{GS} =0 400	f=100Hz 115		A	
2N5484	TMPF5484	N	6B	NJ26	I _G =1μA -25	V _{GS} =-20V 1.0	V _{DS} =15V, I _D =10nA -30 -3.0				V _{DS} =15V 1.0 5.0		V _{DS} =15V, V _{GS} =0 3.0 6.0		V _{DS} =15V 5.0	V _{DS} =15V 1.0				D	
2N5485	TMPF5485	N	6B1	NJ26	I _G =1μA -25	V _{GS} =-20V 1.0	V _{DS} =15V, I _D =10nA -1.0 -4.0				V _{DS} =15V 4.0 10		V _{DS} =15V, V _{GS} =0 3.5 7.0		V _{DS} =15V 5.0	V _{DS} =15V 1.0				D	
2N5486	TMPF5486	N	6H	NJ26	I _G =1μA -25	V _{GS} =-20V 1.0	V _{DS} =15V, I _D =10nA -2.0 -6.0				V _{DS} =15V 8.0 20		V _{DS} =15V, V _{GS} =0 4.0 8.0		V _{DS} =15V 5.0	V _{DS} =15V 1.0				D	

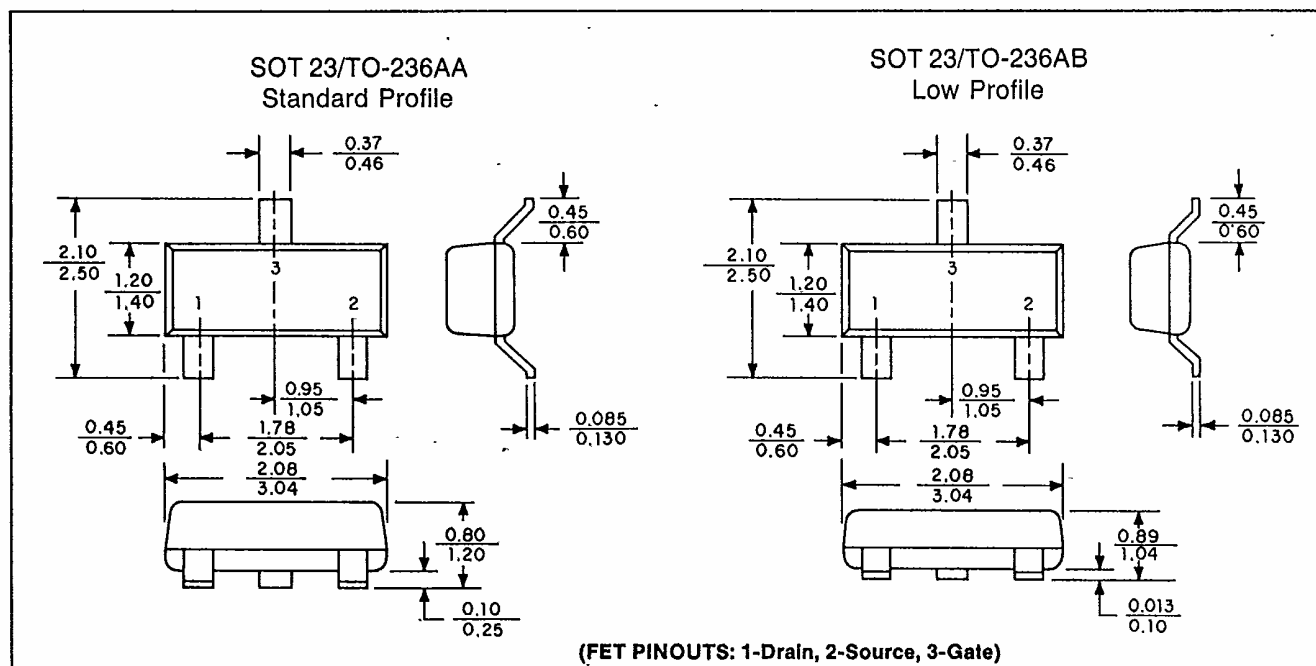
EUROPEAN STANDARD

APPLICATION NOTES: (A) GENERAL PURPOSE (B) LOW NOISE AMP (C) SWITCH/CHOPPER (D) VHF/UHF AMP (E) LOW LEAKAGE AMP

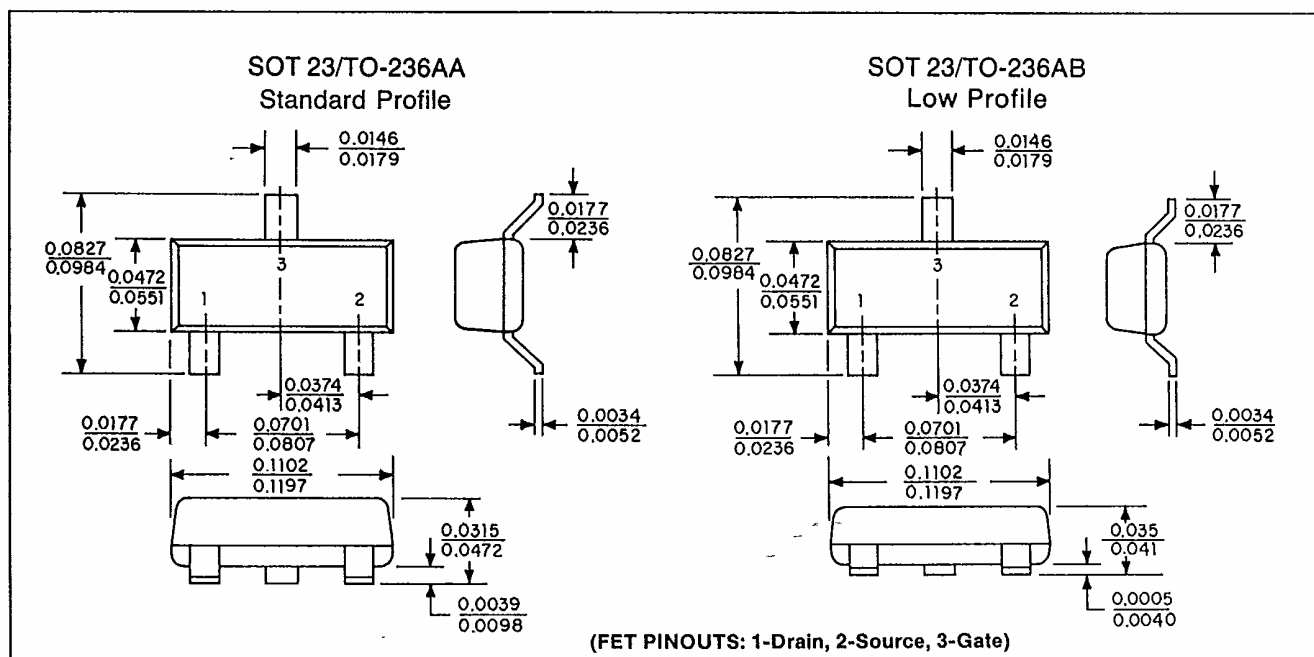
TEST PARAMETER					BV _{GSS}	I _{GSS}	V _{GS(OFF)}		V _{GS(ON)}		I _{DSS}		G _M	C _{ISS}	C _{RSS}	R _{DS}	E _N	T _(OFF)	APPLICATION NOTES	
UNITS		POLARITY	MARKING	PROCESS	(V)	(nA)	(V)		(V)		(mA)		(mS)	(pF)	(pF)	(Ω)	nV/Hz ^{1/2}	(ns)		
DEVICE TYPE	SOT 23 DESIGNATION				TEST CONDITIONS AND LIMITS															
					MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MAX.	MAX.	MAX.	MAX.		TYP.
BC264	BC264SM	N	6Q	NJ26	I _G =1μA -30	V _{GS} =-20V 10	V _{DS} =15, I _D =10nA -0.5		V _{DS} =15, I _D =200mA -0.40		V _{DS} =15V 2 12		V _{DS} =15, V _{GS} =0 2.5		V _{GS} =-1V 4		V _{GS} =-1V 1.2		f=10Hz 40	B
BF244	BF244SM	N	6Q	NJ26	I _G =1μA -30	V _{GS} =-20V 5	V _{DS} =15 I _D 10nA -0.5 -8		V _{DS} =15, I _D =200mA -0.40 -7.5		V _{DS} =15V 2 25		V _{DS} =15, V _{GS} =0 3.0 6.5		V _{GS} =-1V 4		V _{GS} =-1V 1.1			D
BF246	BF246SM	N	6U	NJ99	I _G =1μA -25	V _{GS} =-15V 5nA	V _{DS} =15 I _D 10nA -0.6 -14.5		V _{DS} =15, I _D =200mA -0.5 -14		V _{DS} =15V 10 300		V _{DS} =15, V _{GS} =0 8.0		I _D =10mA 11		I _D =10mA 3.5			D
BF256	BF256SM	N	6Q2	NJ26	I _G =1μA -30	V _{GS} =-20V 5			V _{DS} =15, I _D =200mA -0.5 -7.5		V _{DS} =15V 3 18		V _{DS} =15, V _{GS} =0 4.5				V _{GS} =-1V 0.7			D
BF320	BF320SM	P	6M1	PJ32	I _G =10μA -15	V _{GS} =10V 20	V _{DS} =10 I _D 10nA 8.0		V _{DS} =10V, I _D =30mA 0.30 7.9		V _{DS} =-10V 0.30 15		V _{DS} =-10, V _{GS} =0 0.80 5.0		V _{DS} =-10V 32		V _{DS} =-10V 16			A
BFR30	BFR30	N	M1	NJ26	I _G =1μA -25	V _{GS} =-10V 0.2	V _{DS} =10 I _D 0.5nA -5				V _{DS} =10V 4 10		V _{DS} =10, V _{GS} =0 1.0 4.0							D
BFR31	BFR31	N	M2	NJ26	I _G =1μA -25	V _{GS} =-10V 0.2	V _{DS} =10 I _D 0.5nA -5				V _{DS} =10V 1 5		V _{DS} =10, V _{GS} =0 1.5 4.5							D
BFT10	BFT10SM	N	6U1	NJ99	I _G =1μA -40	V _{GS} =-20V 0.8	V _{DS} =10V I _D 1nA -2 -7				V _{DS} =10V 10		V _{DS} =10, V _{GS} =0 6.0 20		V _{GS} =-10 4.0		V _{GS} =-10 1.5		V _{GS} =0 100	C
BFT11	BFT11SM	P	6P5	PJ99	I _G =1μA 25	V _{GS} =15V 10	V _{DS} =-10V I _D 1nA 4 9.5				V _{DS} =-10V 10		V _{DS} =-10, V _{GS} =0 6.0 15		V _{GS} =0 18		V _{GS} =6V 6.0		V _{GS} =0 150	C

DIMENSIONS

MILLIMETRES



INCHES*



*Based on 25.4 mm = 1 in.