

SMD FET's

DESCRIPTION

■ Philips Components surface mount range of FET's is the most extensive available, and offers low parasitic capacitance, negligible inductance, and reduced board assembly cost. The three categories of FET's each have its own attributes and applications:

■ Junction FET's (JFET's): Rugged and economical, able to withstand large transient voltages. Extremely high input impedance, low power consumption, and high dynamic range allow for application in all types of low voltage switching and amplification.

■ N-Channel MOSFET's: Available in both single and dual gate configurations. Single gate types are used for switches, choppers, and converters in telecommunications and industrial application. Dual gate devices are especially suitable for VHF/UHF antenna amplifier tuners.

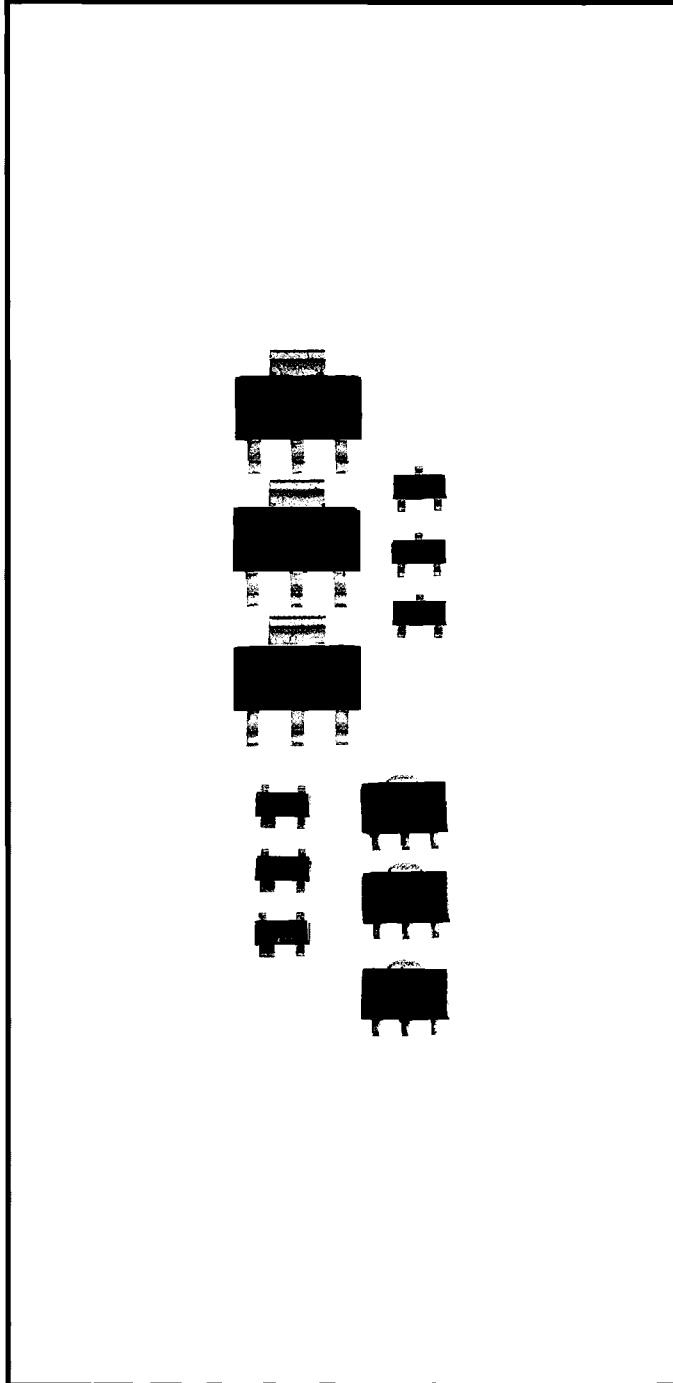
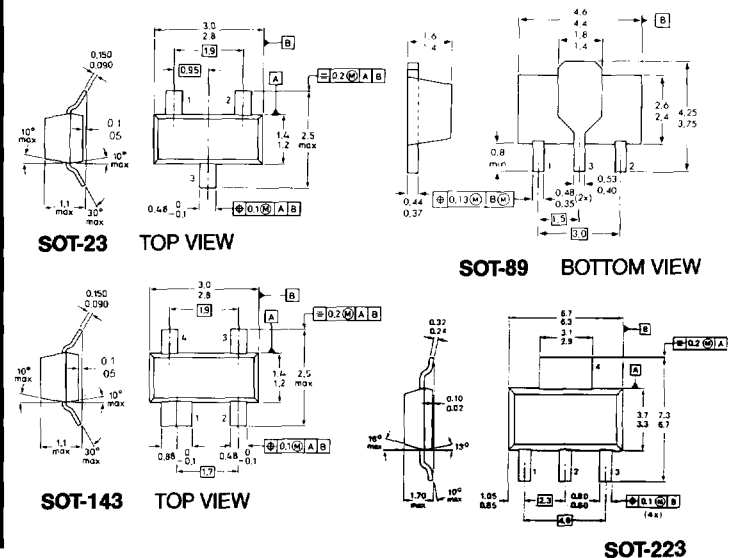
■ Vertical DMOS FET's: Offer medium and high drain-source voltages and source currents. Interdigitated metallization geometries produce lower input capacitances and thus, faster switching times than other types of DMOSFET's. Ideally suited for higher current and voltage applications.

FEATURES

- High input impedance
- Low power consumption
- High dynamic range
- N and P-Channel polarities

MECHANICAL DATA

(Dimensions in mm)



SMD FET's

ELECTRICAL SPECIFICATIONS

J FET's

TYPE	PACKAGE	RATINGS		r _{DS (on)} MAX. Ω	-I _{DSS} MIN./MAX. mA	-V _{(P)GS} MAX. V	C _{rs} MAX. pF	PINOUT
		V _{DS} V	V _{GSO} V					
N-CHANNEL								
BF510	SOT-23	20	—	—	.07/3.0	0.8	0.4	B
BF511	SOT-23	20	—	—	2.5/7.0	1.5	0.4	B
BF512	SOT-23	20	—	—	6/12	2.2	0.4	B
BF513	SOT-23	20	—	—	10/18	3	0.4	B
BFR30	SOT-23	25	25	—	4/10	5	1.5	A
BFR31	SOT-23	25	25	—	1/5	2.5	1.5	A
BFT46	SOT-23	25	25	—	0.2/1.5	1.0	1.5	A
PMBFJ108	SOT-23	25	25	8	80/-	10	15	A
PMBFJ109	SOT-23	25	25	12	40/-	6	15	A
PMBFJ110	SOT-23	25	25	18	10/-	4	15	A
BFR101A*	SOT-143	30	30	—	0.2/1.5	1.0	—	C
BFR101B*	SOT-143	30	30	—	1/5	2.5	—	C
BSR56	SOT-23	40	40	25	50/-	10	5	A
BSR57	SOT-23	40	40	40	20/100	6	5	A
BSR58	SOT-23	40	40	60	8/80	4	5	A
PMBF4391	SOT-23	40	40	30	50/150	4-10	3.5	A
PMBF4392	SOT-23	40	40	60	25/75	2-5	3.5	A
PMBF4393	SOT-23	40	40	100	5/30	0.53	3.5	A
P-CHANNEL								
PMBFJ174	SOT-23	—	30	85	20/135	10	—	A
PMBFJ175	SOT-23	—	30	125	7/70	6	—	A
PMBFJ176	SOT-23	—	30	250	2/35	4	—	A
PMBFJ177	SOT-23	—	30	300	1.5/20	2.25	—	A
PMBFJ111	SOT-23	40	40	30	20/-	10	3typ.	A
PMBFJ112	SOT-23	40	40	50	5/-	5	3typ.	A
PMBFJ113	SOT-23	40	40	100	2/-	3	3typ.	A

MOSFET'S

TYPE	PACKAGE	MODE	RATINGS		g _{FS} (TYP) mA/V	V _{(P)GS} MAX. V	R _{DS (on)} MAX. AT I _D /V _{GS}		PINOUT
			V _{DS} V	I _D mA			Ω	mA/V	
N-CHANNEL									
BSD20*	SOT-143	Dpl	10	50	15	-2.0	30	1/10	C
BSS83*	SOT-143	Enh	10	50	15	2.0	45	0.1/10	C
BSD22*	SOT-143	Dpl	20	50	15	-2.0	30	1/10	C

DUAL GATE MOSFET'S

TYPE	PACKAGE	RATINGS		NF typ dB	-I _{GSS} max. nA	I _{DSS} min./max. mA	-V _{(P)GS} max. V	Y _{fs} min. mA/V	C _{rs} typ pF	PINOUT
		V _{DS} V	I _D mA							
N-CHANNEL										
BF998	SOT-143	12	30	0.6	50	4/20	2.0	21	.025	E
BF990	SOT-143	18	30	2.8	—	—	1.3	17	0.25	E
BF991	SOT-143	20	20	0.7	50	4/25	2.5	10	0.20	E
BF989	SOT-143	20	30	2.8	50	2/20	2.7	9.5	0.25	E
BF992	SOT-143	20	40	1.2	25	—	1.3	20	.04	E
BF994S	SOT-143	20	40	1.2	25	—	1.3	20	.04	E
BF996S	SOT-143	20	40	1.2	25	—	1.3	20	.04	E
BF997	SOT-143	20	30	1.0	50	2/20	2.0	15	.025	E

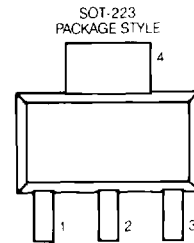
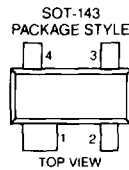
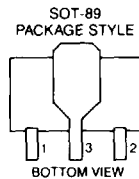
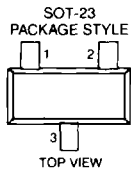
*Includes integrated back-to-back diodes to protect against excessive input voltages.

SMD FET's

VERTICAL DMOS FET'S

TYPE	PACKAGE	RATINGS			YFS typ mA/V	VGS(TH) V	R _{DS(on)} max at I _D /VGS		PINOUT
		V _{DS} V	V _{GS} V	I _D mA			Ω	mA/V	
N-CHANNEL									
BSP103	SOT-223	35	20	750	170	0.8-2.0	5	300/5	T
BSP105	SOT-223	60	20	500	170	0.8-2.0	5	300/5	T
BSP106	SOT-223	60	15	500	200	0.8-3.0	5	200/10	T
BSP108	SOT-223	80	20	500	300	1.5-3.5	3	500/10	T
BSP110	SOT-223	80	20	325	150	0.8-2.8	7	200/10	T
BST80	SOT-89	80	20	400	300	1.5-3.5	4	500/10	D
BST82	SOT-23	80	20	175	150	1.6-3.5	10	150/5	D
BSP109	SOT-223	90	20	500	170	0.8-2.0	5.3	300/5	T
BST86	SOT-89	180	20	300	250	0.7-2.7	10	15/3	D
BST84	SOT-89	200	20	250	250	0.8-2.8	12	250/10	D
BSP120	SOT-223	200	20	250	250	0.8-2.8	12	250/10	T
BSP121	SOT-223	200	20	300	350	0.8-2.8	6	400/10	T
BSP126	SOT-223	250	20	300	400	0.8-2.0	6	300/10	T
P-CHANNEL									
BSP205	SOT-223	50	20	250	150	1.5-3.5	10	200/10	T
BST122	SOT-89	50	20	250	125	1.5-3.5	6	200/10	D
BST120	SOT-89	60	20	300	200	1.5-3.5	10	200/10	D
BSP206	SOT-223	60	20	300	200	1.5-3.5	6	200/10	T
BSP220	SOT-223	200	20	250	200	0.8-2.24	12	200/10	T
BSS192	SOT-89	200	20	150	200	0.8-2.8	20	200/10	D
BSP225	SOT-223	250	20	250	200	0.8-2.8	15	200/10	T

PINOUT DIAGRAMS



	PIN 1	PIN 2	PIN 3	PIN 4
PINOUT A: SOT-23	S	D	G	—
PINOUT B: SOT-23	D	G	S	—
PINOUT C: SOT-143	S	Sub.	D	G
PINOUT D: SOT-23	S	G	D	—
PINOUT D: SOT-89	S	G	D	—
PINOUT T: SOT-223	G	D	S	D

MARKING CODES

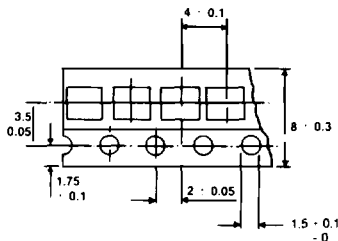
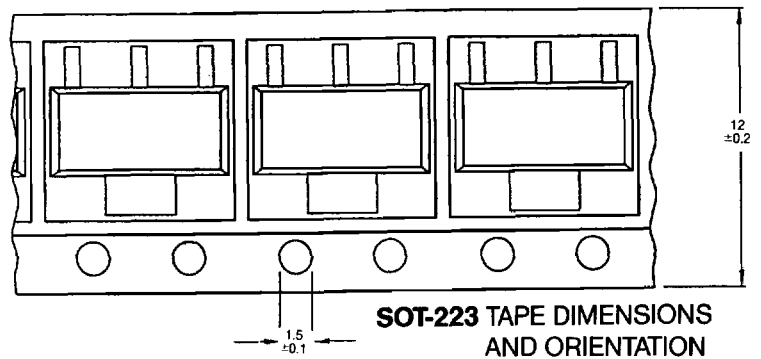
Type No.	Code	Type No.	Code	Type No.	Code	Type No.	Code
BF510	S6	BFR31	M2	BSP121	*	PMBF4393	M64
BF511	S7	BFR101A	M97	BSP126	*	PMBFJ108	*
BF512	S8	BFR101B	M98	BSP205	*	PMBFJ109	*
BF513	S9	BFT46	M3	BSP206	*	PMBFJ110	*
BF989	MA	BSD20	M31	BSP220	*	PMBFJ111	M41
BF990	M90	BSD22	M32	BSP225	*	PMBFJ112	M42
BF991	M91	BSP103	*	BSR56	M4	PMBFJ113	M43
BF992	M92	BSP105	*	BSR57	M5	PMBFJ174	6X
BF994S	MG	BSP106	*	BSR58	M6	PMBFJ175	6W
BF996S	MW	BSP108	*	BSS83	M74	PMBFJ176	6S
BF997	MK	BSP109	*	BSS192	KB	PMBFJ177	6Y
BF998	*	BSP110	*	PMBF4391	M62		
BFR30	MI	BSP120	*	PMBF4392	M63		

*See individual device data sheet.

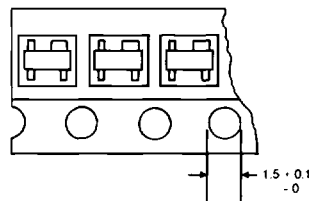
TAPE AND REEL SPECIFICATIONS

(Dimensions in mm)

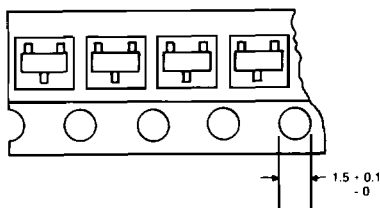
SM Package	Devices per reel	Reel Size (in)	Tape Width (mm)	Ordering Suffix
SOT-23	3K	7	8	TRL
	10K	13	8	TRL 13
SOT-89	1K	7	12	TRL
	4K	13	12	TRL 13
SOT-143	3K	7	8	TRL
	10K	13	8	TRL 13
SOT-223	1K	7	12	TRL
	4K	13	12	TRL 13



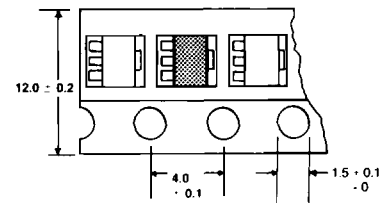
SOT-23 and SOT-143 TAPE DIMENSIONS



SOT-143 ORIENTATION



SOT-23 ORIENTATION



SOT-89 TAPE DIMENSIONS AND ORIENTATION