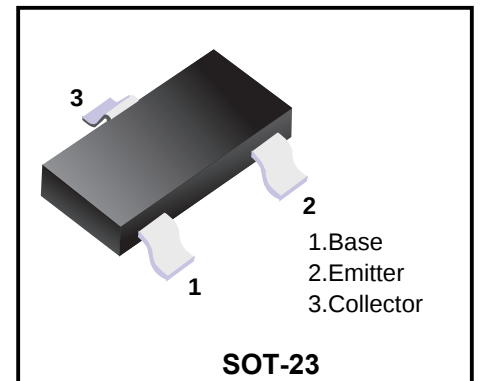


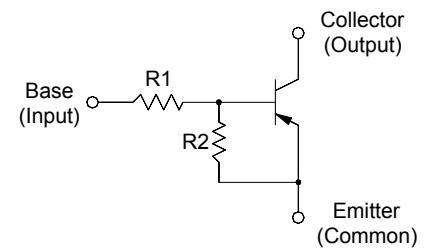
PNP Silicon Epitaxial Planar Transistor

for switching and interface circuit and
drive circuit applicatio



Resistor Values

Type	Marking	R1 (K)	R2 (K)
MMUN2111	A6A	10	10
MMUN2112	A6B	22	22
MMUN2113	A6C	47	47
MMUN2114	A6D	10	47
MMUN2115	A6E	10	∞
MMUN2116	A6F	4.7	∞
MMUN2130	A6G	1	1
MMUN2131	A6H	2.2	2.2
MMUN2132	A6J	4.7	4.7
MMUN2133	A6K	4.7	47
MMUN2134	A6L	22	47



Absolute Maximum Ratings (Ta = 25°C)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	-50	V
Collector Emitter Voltage	V_{CEO}	-50	V
Collector Current	I_C	-100	mA
Total Power Dissipation	P_{tot}	200	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_S	- 55 to + 150	°C

Characteristics at Ta = 25°C

Parameter		Symbol	Min.	Max.	Unit
DC Current Gain at $-V_{CE} = 10\text{ V}$, $-I_C = 5\text{ mA}$	MMUN2111	h_{FE}	35	-	-
	MMUN2112	h_{FE}	60	-	-
	MMUN2113	h_{FE}	80	-	-
	MMUN2114	h_{FE}	80	-	-
	MMUN2115	h_{FE}	160	-	-
	MMUN2116	h_{FE}	160	-	-
	MMUN2130	h_{FE}	3	-	-
	MMUN2131	h_{FE}	8	-	-
	MMUN2132	h_{FE}	15	-	-
	MMUN2133	h_{FE}	80	-	-
	MMUN2134	h_{FE}	80	-	-
Collector Base Cutoff Current at $-V_{CB} = 50\text{ V}$		I_{CBO}	-	-100	nA
Collector Emitter Cutoff Current at $-V_{CE} = 50\text{ V}$		I_{CEO}	-	-500	nA
Emitter Base Cutoff Current at $-V_{EB} = 6\text{ V}$	MMUN2111	I_{EBO}	-	-0.5	mA
	MMUN2112	I_{EBO}	-	-0.2	mA
	MMUN2113	I_{EBO}	-	-0.1	mA
	MMUN2114	I_{EBO}	-	-0.2	mA
	MMUN2115	I_{EBO}	-	-0.9	mA
	MMUN2116	I_{EBO}	-	-1.9	mA
	MMUN2130	I_{EBO}	-	-4.3	mA
	MMUN2131	I_{EBO}	-	-2.3	mA
	MMUN2132	I_{EBO}	-	-1.5	mA
	MMUN2133	I_{EBO}	-	-0.18	mA
	MMUN2134	I_{EBO}	-	-0.13	mA
Collector Base Breakdown Voltage at $-I_C = 10\text{ }\mu\text{A}$		$V_{(BR)CBO}$	-50	-	V
Collector Emitter Breakdown Voltage at $-I_C = 2\text{ mA}$		$V_{(BR)CEO}$	-50	-	V
Collector Emitter Saturation Voltage at $-I_C = 10\text{ mA}$, $-I_B = 0.3\text{ mA}$ at $-I_C = 10\text{ mA}$, $-I_B = 5\text{ mA}$ at $-I_C = 10\text{ mA}$, $-I_B = 1\text{ mA}$	MMUN2130	V_{CEsat}	-	-0.25	V
	MMUN2131	V_{CEsat}	-	-0.25	V
	MMUN2115	V_{CEsat}	-	-0.25	V
	MMUN2116	V_{CEsat}	-	-0.25	V
	MMUN2132	V_{CEsat}	-	-0.25	V
	MMUN2133	V_{CEsat}	-	-0.25	V
	MMUN2134	V_{CEsat}	-	-0.25	V
		V_{CEsat}	-	-0.25	V

Characteristics at Ta = 25°C

Parameter		Symbol	Min.	Max.	Unit
Output Voltage (on) at $-V_{CC} = 5\text{ V}$, $-V_B = 2.5\text{ V}$, $R_L = 1\text{ K}\Omega$	MMUN2111	V_{OL}	-	-0.2	V
	MMUN2112	V_{OL}	-	-0.2	V
	MMUN2114	V_{OL}	-	-0.2	V
	MMUN2115	V_{OL}	-	-0.2	V
	MMUN2116	V_{OL}	-	-0.2	V
	MMUN2130	V_{OL}	-	-0.2	V
	MMUN2131	V_{OL}	-	-0.2	V
	MMUN2132	V_{OL}	-	-0.2	V
	MMUN2133	V_{OL}	-	-0.2	V
	MMUN2134	V_{OL}	-	-0.2	V
	MMUN2113	V_{OL}	-	-0.2	V
Output Voltage (off) at $-V_{CC} = 5\text{ V}$, $-V_B = 0.5\text{ V}$, $R_L = 1\text{ K}\Omega$ at $-V_{CC} = 5\text{ V}$, $-V_B = 0.05\text{ V}$, $R_L = 1\text{ K}\Omega$ at $-V_{CC} = 5\text{ V}$, $-V_B = 0.25\text{ V}$, $R_L = 1\text{ K}\Omega$	MMUN2130	V_{OH}	-4.9	-	V
	MMUN2115	V_{OH}	-4.9	-	V
	MMUN2116	V_{OH}	-4.9	-	V
	MMUN2131	V_{OH}	-4.9	-	V
	MMUN2132	V_{OH}	-4.9	-	V
Input Resistor	MMUN2111	R1	7	13	K Ω
	MMUN2112	R1	15.4	28.6	K Ω
	MMUN2113	R1	32.9	61.1	K Ω
	MMUN2114	R1	7	13	K Ω
	MMUN2115	R1	7	13	K Ω
	MMUN2116	R1	3.3	6.1	K Ω
	MMUN2130	R1	0.7	1.3	K Ω
	MMUN2131	R1	1.5	2.9	K Ω
	MMUN2132	R1	3.3	6.1	K Ω
	MMUN2133	R1	3.3	6.1	K Ω
	MMUN2134	R1	15.4	28.6	K Ω
Resistor Ratio	MMUN2111/MMUN2112/MMUN2113	R1/R2	0.8	1.2	-
	MMUN2114	R1/R2	0.17	0.25	-
	MMUN2115/MMUN2116	R1/R2	-	-	-
	MMUN2130/MMUN2131/MMUN2132	R1/R2	0.8	1.2	-
	MMUN2133	R1/R2	0.055	0.185	-

Ordering information

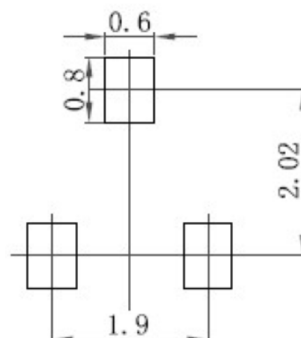
Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel, 7" reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT-23

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.15	35	45
A1	0.1		3.9	
bp	0.38	0.48	15	19
C	0.09	0.15	3.54	5.9
D	2.8	3.0	110	118
E	1.2	1.4	47	55
E	1.9		75	
E1	0.95		37	
HE	2.1	2.55	83	100
Lp	0.15	0.45	5.9	18
Q	0.45	0.55	18	22
v	0.2		7.9	
W	0.1		4	

The recommended mounting pad size



Disclaimer

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