

MEDIUM POWER (UNIWATT) TRANSISTORS

For applications requiring higher power dissipation than that of the standard TO-92 package, Motorola has developed the Uniwatt case. In this plastic-encapsulated package, which is slightly larger than the Small-Signal Case, the collector is mounted on a metal tab that extends out of the case. With a satisfactory heat sink Uniwatt, Transistors can dissipate up to 100 Watts. Without a heat sink power dissipation at an ambient of 25 °C it is 1.0 Watt.

NPN	PNP	BV _{CEO} (Volts)	Pd @ 25 °C (W)		I _C max. (Amps)
			T _{amb}	T _{case}	
BD505	BD506	20	1.0	10	2
BD507	BD508	30	1.0	10	2
BD509	BD510	40	1.0	10	2
BD515	BD516	45	1.0	10	2
BD517	BD518	60	1.0	10	2
BD519	BD520	80	1.0	10	2
BD525	BD526	60	1.0	10	2
BD527	BD528	80	1.0	10	2
BD529	BD530	100	1.0	10	2
BF380		180	1.0	10	0.5
BF381		250	1.0	10	0.5
BF382		300	1.0	10	0.5
MPSU03		120	1.0	10	1.0
MPSU04		180	1.0	10	1.0

SWITCHING TRANSISTORS (TO-92)

NPN	PNP	BV _{CEO} (Volts)	Pd 25 °C Amb. (mW)	I _C max. (mA) Cont.	H _{FE} @		I _C (mA)
					Min.	Max.	
2N3903	2N3905	40	625	100	50	150	10
2N3904	2N3906	40	625	100	100	300	10
2N4400	2N4402	40	625	600	50	150	150
MPS2369		15	625	500	40	120	10
MPS3646		15	625	500	30	120	30
	MPS3640	15	625	200	30	120	10
	MPS404	24	625	150	30	400	12
	MPS404A	35	625	150	30	400	12

* Typical value only.

DARLINGTON TRANSISTORS (TO-92 and UNIWATT)

NPN	PNP	BV _{CEO} (Volts) Min.	Pd (mW) 25 °C Amb.	I _C max. (mA) Cont.
MPSA13		30	625	300
	MPSA63	30	625	300
MPSU45	MPSU95	40	1000	2000

DUOWATT TRANSISTORS

This is a new family developed by Motorola for high power dissipation. Just like the Uniwatt, the collector is mounted on a metal tab that extends to the case. Heat sink power dissipation of the Duowatt at an ambient of 25 °C is 2.0 Watts.

NPN	PNP	BV _{CEO} (Volts)	Pd @ 25 °C (W)		I _C max. (Amps)
			T _{amb}	T _{case}	
BD415	BD416	60	2.0	10	1.0
BD417	BD418	80	2.0	10	1.0
BD419	BD420	100	2.0	10	1.0
BF460	BF463	250	2.0	10	0.5
BF461	BF464	300	2.0	10	0.5
BF462	BF465	350	2.0	10	0.5
BF466		150	2.0	10	1.0
BF467		200	2.0	10	1.0
BF468		250	2.0	10	1.0

HFE @ Min.	Max.	Amps	VCE (Volts)	VCES @ max. (Volts)	FT min. (MHz)	COB Max. (pF)	IC (Amps)
60	—	0.25	2	0.7	50	30	1.0
60	—	0.25	2	0.7	50	30	1.0
60	—	0.25	2	0.7	50	30	1.0
60	350	0.15	2	0.5	50	12	0.5
60	350	0.15	2	0.5	50	12	0.5
60	350	0.15	2	0.5	50	12	0.5
60	—	0.05	2	0.5	90	15	0.25
60	—	0.05	2	0.5	90	15	0.25
60	—	0.05	2	0.5	90	15	0.25
25	—	0.03	10	0.75	100	—	0.03
25	—	0.03	10	0.75	100	—	0.03
25	—	0.03	10	0.75	—	—	0.03
40	—	0.01	10	0.5	—	12	0.05
40	—	0.01	10	0.5	—	12	0.05

VCE (Volts)	FT Typ. (MHz)	TON max. (nS)	TOFF max. (nS)	IC max. (mA)	IB1 (mA)	IB2 (mA)	Pinnings
1	400	70	225	10	1	1	EBC
1	400	70	250	10	1	1	EBC
1	400	35	255	150	15	15	EBC
1	650	12	18	10	3	1.5	EBC
0.4	450	18	28	300	30	30	EBC
0.3	1000	25	35	50	5	5	EBC
0.15	—	265*	385*	10	1	1	EBC
0.15	—	265*	385*	10	1	1	EBC

Min.	HFE @ Max.	IC (mA)	VCE (Volts)	FT Types (MHz)	Pinnings
10 K	—	100	5	200	EBC
10 K	—	100	5	175	EBC
15 K	—	500	5	—	Uniwatt EBC

Min.	HFE @ Max.	IC (Amps)	VCE (Volts)	VCES @ max. (Volts)	FT @ min. (MHz)	IC (mA)	COB Max. (pF)	Pinning
60	—	0.25	1.0	0.5	75	100	18	EBC
60	—	0.25	1.0	0.5	75	100	18	EBC
60	—	0.25	1.0	0.5	75	100	18	EBC
40	180	0.03	10	0.6	45	10	3.0	EBC
40	180	0.03	10	0.6	45	10	3.0	EBC
40	180	0.03	10	0.6	45	110	3.0	EBC
40	—	0.1	10	—	100	50	12	EBC
40	—	0.1	10	—	100	50	12	EBC
40	—	0.1	10	—	100	50	12	EBC