

NPN POWER DARLINGTON

20 AMPERE

CMJ 10004
CMJ 10005
C 1001
C 1002

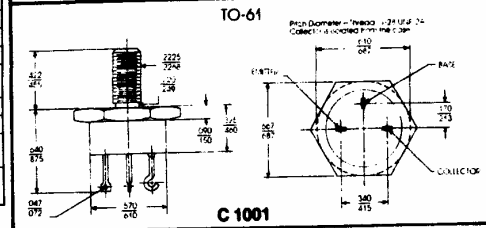
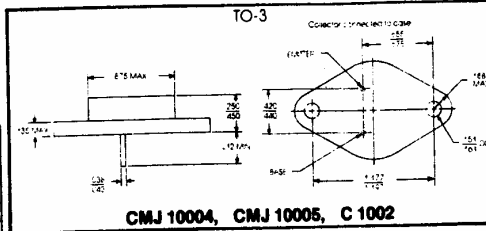
GEOMETRY 513

- High V_{CEO} to 450V
- High Gain
- Fast Switching

MAXIMUM RATINGS

PARAMETER	SYMBOL	CMJ10004	CMJ10005	C1001	C1002	UNIT
Collector-emitter voltage	V _{CEO}	350	400	400	450	Vdc
Collector-emitter voltage	V _{CEx}	400	450	450	450	Vdc
Collector-emitter voltage	V _{CEV}	450	500	500	500	Vdc
Emitter base voltage	V _{EB}	8.0	8.0	8.0	8.0	Vdc
Collector Current-Continuous	I _C	20	20	20	20	Adc
Collector Current-Continuous -Peak*	I _{CM}	30	30	30	30	Adc
Base Current-Continuous	I _B	2.5	2.5	2.5	2.5	Adc
Base Current-Continuous -Peak*	I _{BM}	5.0	5.0	5.0	5.0	Adc
Power Dissipation @TC = 25°C	P _d	175	175	175	175	W
@TC = 100°C		100	100	100	100	W
Linear Derating Factor		1.0	1.0	1.0	1.0	W/°C
Storage & Operating Junction Temp. Range		-65°C to +200°C				
Lead Temperature (1/8" from case)		275°C for 5 seconds				

*Pulsed: Pulse width = 5.0 ms, Duty Cycle < 10%



ELECTRICAL CHARACTERISTICS AT 25°C CASE TEMPERATURE (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	CMJ10004		CMJ10005 (TO-3) C1001 (TO-61)		C1002		UNIT
			MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	
Collector-Emitter Sustaining Voltage	V _{CEO(sus)}	I _C = 250mA, I _B = 0, V _{clamp} = Rated V _{CEO}	350		400		450		Vdc
	V _{CEx(sus)}	I _C = 2.0A, V _{clamp} = Rated V _{CEx} , T _C = 100°C	400		450		450		Vdc
		I _C = 10A, V _{clamp} = Rated V _{CEx} , T _C = 100°C	275		325		325		Vdc
Collector Cutoff Current	I _{CEV}	V _{CEV} = Rated Value, V _{BE(Off)} = 1.5 Vdc		0.25		0.25		0.25	mAdc
		V _{CEV} = Rated Value, V _{BE(Off)} , T _C = 150°C		5.0		5.0		5.0	mAdc
	I _{CER}	V _{CE} = Rated Value, R _{BE} = 50Ω, T _C = 100°C		5.0		5.0		5.0	mAdc
Emitter Cutoff Current	I _{EBO}	V _{EB} = 2.0 Vdc, I _C = 0		175		175		175	mAdc
DC Current Gain	h _{FE}	I _C = 5.0 Adc, V _{CE} = 5.0 Vdc	50	600	50	600	50	600	
		I _C = 10 Adc, V _{CE} = 5.0 Vdc	40	400	40	400	40	400	
Collector Emitter Saturation Voltage	V _{CE(sat)}	I _C = 10 Adc, I _B = 400 mAdc		1.9		1.9		1.9	Vdc
		I _C = 20 Adc, I _B = 2.0 Adc		3.0		3.0		3.0	Vdc
		I _C = 10 Adc, I _B = 400 mAdc, T _C = 100°C		2.0		2.0		2.0	Vdc
Base Emitter Saturation Voltage	V _{BE(sat)}	I _C = 10 Adc, I _B = 400 mAdc		2.5		2.5		2.5	Vdc
		I _C = 10 Adc, I _B = 400 mAdc, T _C = 100°C		2.5		2.5		2.5	Vdc
Diode Forward Voltage	V _f	I _f = 10 Adc		5.0		5.0		5.0	Vdc
Small Signal Current Gain	h _{fe1}	I _C = 1.0 Adc, V _{CE} = 10 Vdc, f _{test} = 1.0MHz	10		10		10		
Output Capacitance	C _{ob}	V _{CB} = 10 Vdc, I _E = 0, f = 100kHz	100	325					pF
Delay Time	t _d	V _{CC} = 250 Vdc, I _C = 10A		0.2		0.2		0.2	μ
Rise Time	t _r	I _{B1} = 400 mA, V _{BE(Off)} = 5.0 Vdc, t _p = 50μs		0.6		0.6		0.6	μ
Storage Time	t _s	Duty Cycle < 2%		1.5		1.5		1.5	μ
Fall Time	t _f			0.5		0.5		0.5	μ
Storage Time	t _{sv}	I _C = 10A(pk), V _{clamp} = Rated V _{CEx} , I _{B1} = 400 mf, V _{BE(Off)} = 5.0 Vdc, T _C = 100°C		2.5		2.5		2.5	μ
Crossover Time	t _c			1.5		1.5		1.5	μ

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