

FT5754M, FT5757M

Silicon Darlington Transistor Array

ABSOLUTE MAXIMUM RATINGS

(Ta = 25°C)

Rating		Symbol	Condition	Value	Unit
Storage Temperature		T _{stg}		-55 ~ +150	°C
Junction Temperature		T _j		+150	°C
Collector to Base Voltage		V _{CBO}		150	V
Emitter to Base Voltage		V _{EBO}		5	V
Collector to Emitter Voltage		V _{CEO}		100	V
Collector Current	(Continuous)	I _C		±33	A
	(Pulsed)	I _{cp}	P _W ≤ 1 ms, D.R. ≤ 50%	±5	A
Base Current (Continuous)		I _B		0.2	A
Diode Forward Current		I _{FM}	P _W ≤ 0.5 ms, D.R. ≤ 25% (*)	3	A
		I _{FSM}	P _W ≤ 100 ms, Single Pulse (*)	5	A
Diode Reverse Voltage		V _R	Pin 3 – Pin 2, 4, Pin 10 – Pin 9, 11 (*)	110	V
Isolation Voltage		V _{iso}	Fin 13 – Pin 1 ~ 12	500	V _{r.m.s.}
Collector Power Dissipation		P _C	Ta = 25°C: Single DLT operation	2.3	W
Total Collector Power Dissipation		P _T	Ta = 25°C: 4-DLT operation	5	W
Total Collector Power Dissipation		P _T	Tc = 25°C: 4-DLT operation	21	W

(*) Fast recovery Diode

DLT: Darlington Transistor

ELECTRICAL CHARACTERISTICS

Single Darlington Transistor Operation

(Ta = 25°C)

Parameter	Symbol	Test Condition	Limit			Unit
			Min.	Typ.	Max.	
Collector to Base Breakdown Voltage	V _{(BR)CBO}	I _C = 100 μA, I _E = 0	150	—	—	V
Emitter to Base Breakdown Voltage	V _{(BR)EBO}	I _E = 70 mA, I _C = 0	5	—	—	V
Collector to Emitter Breakdown Voltage	V _{(BR)CEO}	I _C = 10 mA, R _{BE} = ∞	100	—	—	V
Collector Cutoff Current	I _{CBO}	V _{CB} = 100 V, I _E = 0	—	—	10	μA
DC Current Gain	h _{FE1}	I _C = 1.5 A, V _{CE} = 5V (**)	2000	6000	15000	—
	h _{FE2}	I _C = 3.0 A, V _{CE} = 5V (**)	500	—	—	—
Collector to Emitter Saturation Voltage	V _{CE(sat)}	I _C = 1.5 A, I _B = 3 mA (**)	—	1.2	1.5	V
Base to Emitter Saturation Voltage	V _{BE(sat)}		—	1.7	2.0	V
Turn-On Time	t _{on}	V _{CC} = 30 V (***)	—	0.6	—	μs
Storage Time	t _{stg}	I _C = 1.5 A	—	1.8	—	μs
Fall Time	t _f	I _{B1} = I _{B2} = 3 mA	—	0.6	—	μs

Single Fastrecovery Diode Operation (FT5754M Only)

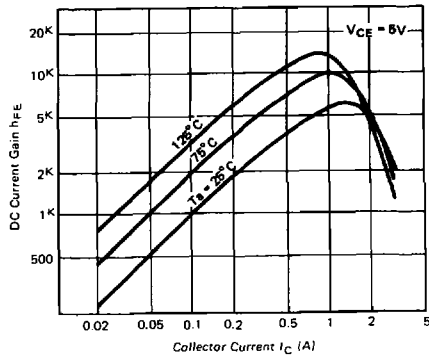
(Ta = 25°C)

Parameter	Symbol	Test Condition	Limit			Unit
			Min.	Typ.	Max.	
Forward Voltage	V _F	I _F = 100 mA	—	—	1.0	V
Reverse Current	I _R	V _R = 100 V	—	—	5	μA
Reverse Voltage	V _R	I _R = 10 μA	110	—	—	V

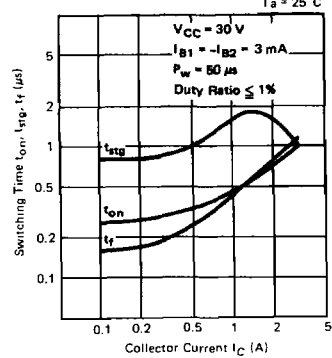
(**) Pulsed Pulse Width ≤ 300 μs
Duty Ratio ≤ 6%

(***) Pulsed Pulse Width = 50 μs
Duty Ratio ≤ 1%

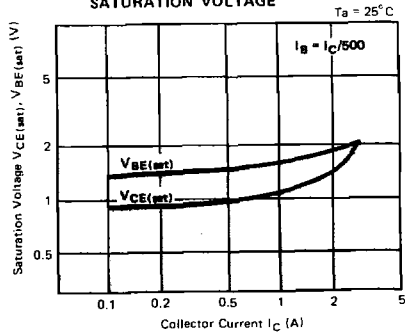
DC CURRENT GAIN



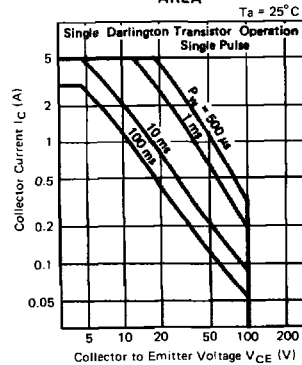
SWITCHING TIME



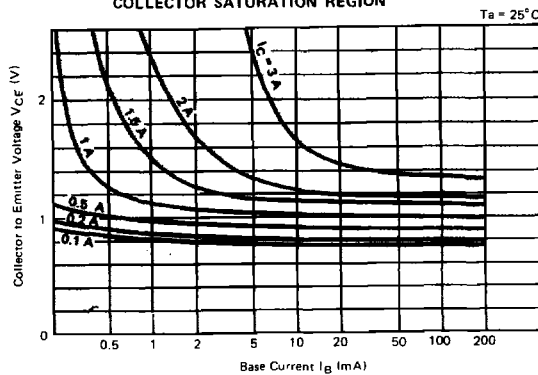
SATURATION VOLTAGE



FORWARD BIAS SAFE OPERATING AREA



COLLECTOR SATURATION REGION



POWER DISSIPATION DERATING

