

FT5753M, FT5756M

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	±1.5	A
	(Pulsed)	I _{CP}	±3	A
Base Current (Continuous)	I _B	P _W ≤ 1 ms, D.R. ≤ 50%	0.1	A
Diode Forward Current	I _{FM}	P _W ≤ 0.5 ms, D.R. ≤ 25% (*)	1.5	A
	I _{FSM}	P _W ≤ 100 ms, Single Pulse (*)	3	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	1.9	W
Total Collector Power Dissipation	P _T	Ta = 25°C: 4-DLT operation	4	W
Total Collector Power Dissipation	P _T	Tc = 25°C: 4-DLT operation	19	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 _{IBR CBO}	I _C = 100 μA, I _E = 0	150	—	—	V
Emitter to Base Breakdown Voltage	V _{IBR EBO}	I _E = 70 mA, I _C = 0	5	—	—	V
Collector to Emitter Breakdown Voltage	V _{IBR 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 = 0.75 A, V _{CE} = 5 V (**)	2000	6000	15000	—
	h _{FE2}	I _C = 1.5 A, V _{CE} = 5 V (**)	500	—	—	—
Collector to Emitter Saturation Voltage	V _{CE(sat)}	I _C = 0.75 A, I _B = 1.5 mA (**)	—	1.1	1.5	V
Base to Emitter Saturation Voltage	V _{BE(sat)}		—	1.6	2.0	V
Turn-On Time	t _{on}	V _{CC} = 30 V (***)	—	0.5	—	μs
Storage Time	t _{stg}	I _C = 0.75 A	—	2.1	—	μs
Fall Time	t _f	I _{B1} = -I _{B2} = 1.5 mA	—	0.4	—	μs

Single Fastrecovery Diode Operation (FT5753M 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

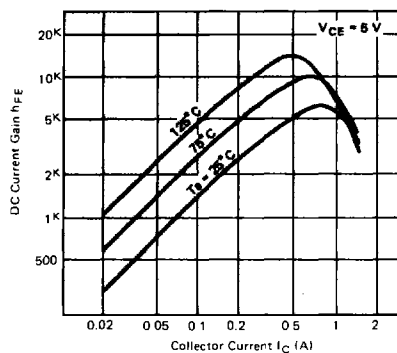
(**) Pulsed

Pulse Width ≤ 300 μs
Duty Ratio ≤ 6%

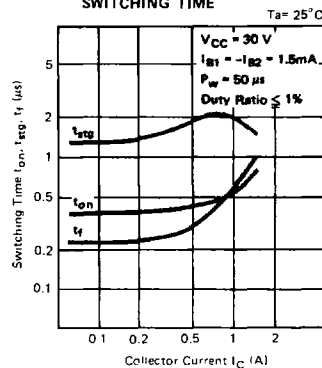
(***) Pulsed

Pulse Width = 50 μs
Duty Ratio ≤ 1%

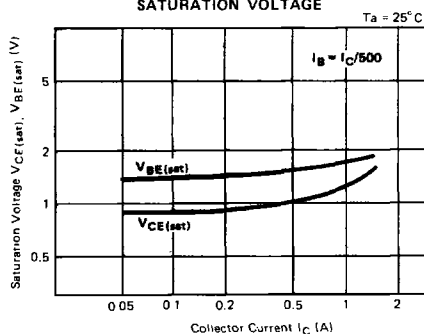
DC CURRENT GAIN



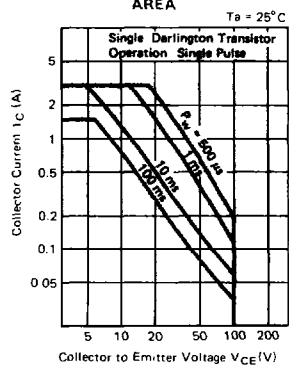
SWITCHING TIME



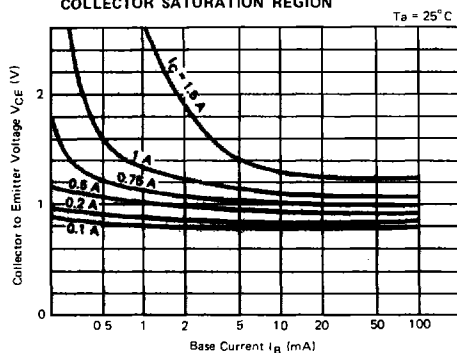
SATURATION VOLTAGE



FORWARD BIAS SAFE OPERATING AREA



COLLECTOR SATURATION REGION



POWER DISSIPATION DERATING

