

T-43-25

January 1990
Edition 1.1



PRODUCT PROFILE

FT5755M, FT5758M

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 _{CB0}		150	V
Emitter to Base Voltage	V _{EB0}		7	V
Collector to Emitter Voltage	V _{CEO}		100	V
Collector Current	(Continuous)	I _C	5	A
	(Pulsed)	I _{CP}	P _W ≤ 1 ms, D.R. ≤ 50%	8
Base Current (Continuous)	I _B		0.5	A
Diode Forward Current	I _{FM}	P _W ≤ 0.5 ms, D.R. ≤ 25% (*)	5	A
	I _{FSM}	P _W ≤ 100 ms, Single Pulse (*)	8	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	2.5	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	25	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
Collector to Emitter Breakdown Voltage	V _{(BR)CEO}	I _C = 25 mA, R _{BE} = ∞	100	-	-	V
Emitter Cutoff Current	I _{EB0}	V _{EB} = 7V, I _C = 0	-	-	5	mA
Collector Cutoff Current	I _{CB0}	V _{CB} = 100 V, I _E = 0 (**)	-	-	1	μA
DC Current Gain	h _{FE1}	I _C = 3A, V _{CE} = 2V (**)	2000	4000	15000	-
	h _{FE2}	I _C = 5A, V _{CE} = 2V (**)	5000	-	-	-
Collector to Emitter Saturation Voltage	V _{CE(sat)}	I _C = 3A, I _B = 3 mA (**)	-	1.2	1.5	V
Base to Emitter Saturation Voltage	V _{BE(sat)}		-	1.6	2.0	V
Turn-On Time	t _{on}	V _{CC} = 50 V (***) I _C = 3A I _{B1} = -I _{B2} = 3 mA	-	1.0	-	μs
Storage Time	t _{stg}		-	2.0	-	μs
Fall Time	t _f		-	1.0	-	μs

Single Fastrecovery Diode Operation (FT5755M Only)

(Ta = 25°C)

Parameter	Symbol	Test Condition	Limit			Unit
			Min.	Typ.	Max.	
Forward Voltage	V _F	I _F = 1A	-	-	1.0	V
Reverse Current	I _R	V _R = 100 V	-	-	10	μA
Reverse Voltage	V _R	I _R = 15 μA	110	-	-	V

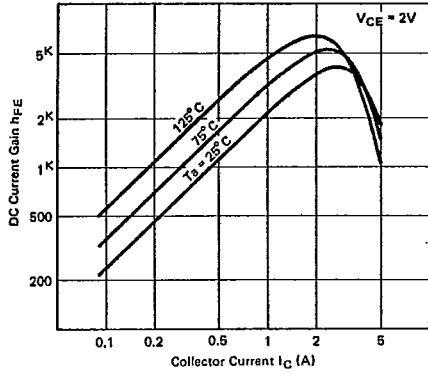
(**) Pulsed Pulse Width ≤ 300 μs
Duty Ratio ≤ 6%

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

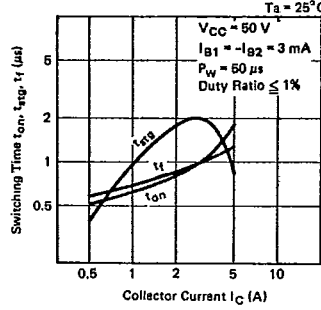
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FT5755M, FT5758M

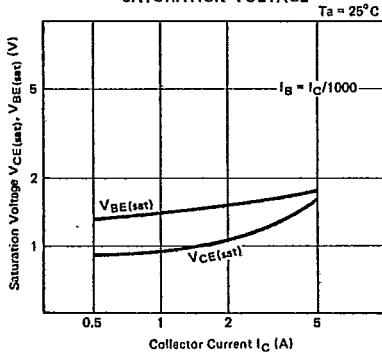
DC CURRENT GAIN



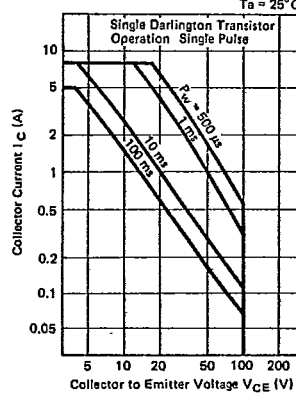
SWITCHING TIME



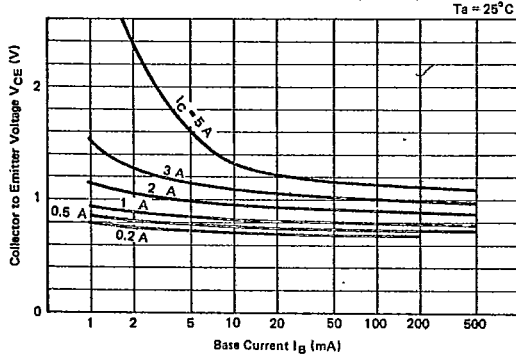
SATURATION VOLTAGE



FORWARD BIAS SAFE OPERATING AREA



COLLECTOR SATURATION REGION



POWER DISSIPATION DERATING

