

SILICON HIGH SPEED POWER TRANSISTOR

2SC 2522 2SC 2523

September 1979

SILICON NPN RING EMITTER TRANSISTOR (RET)

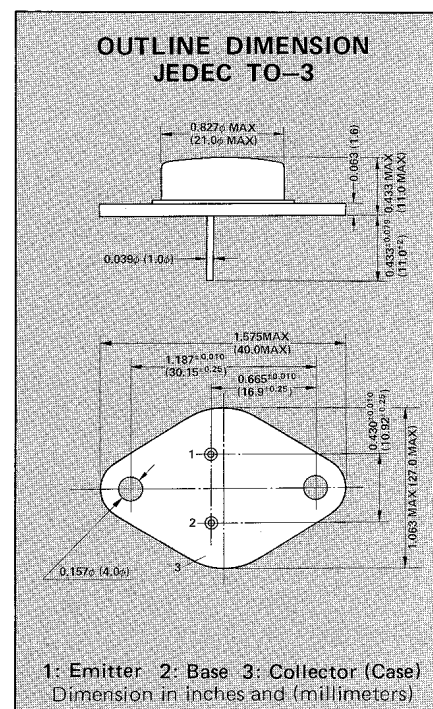
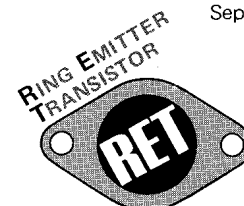
The 2SC 2522/2SC 2523 are silicon NPN general purpose, high power switching transistors fabricated with Fujitsu's unique Ring Emitter Transistor (RET) technology. RET devices are constructed with multiple emitters connected through diffused ballast resistors which provide uniform current density. This structure permits the design of high power transistors with exceptional switching characteristics and frequency response in high current applications.

The 2SC 2522/2SC 2523 are especially well-suited for High frequency power amplifiers, Audio power amplifiers, Switching regulators and DC-DC Converters. PNP complements, 2SA 1072/2SA 1073, are available.

- High $f_T = 80$ MHz (typ)
- Ultra fast switching speed
- Excellent Safe Operating Area
- Improved reverse Second-Breakdown Capability

ABSOLUTE MAXIMUM RATINGS

Rating	Symbol	Value		Unit
		2SC 2522	2SC 2523	
Collector to Base Voltage	V_{CBO}	120	160	V
Emitter to Base Voltage	V_{EBO}	7	7	V
Collector to Emitter Voltage	V_{CEO}	120	160	V
Collector Current	I_C	12	12	A
Collector Power Dissipation ($T_C = 25^\circ\text{C}$)	P_C	120	120	W
Junction Temperature	T_j	+150		$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-65 ~ +150		$^\circ\text{C}$



ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Test Conditions	Limits						Unit
			2SC 2522			2SC 2523			
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Collector Cutoff Current	I _{CBO}	V _{CB} = 120V/160V, I _E = 0	—	—	50/—	—	—	—/50	μA
Emitter Cutoff Current	I _{EBO}	V _{EB} = 7V, I _C = 0	—	—	50			50	μA
Collector Cutoff Current	I _{CEO}	V _{CE} = 120V/160V, R _{BE} = ∞	—	—	1/—	—	—	—/1	mA
Collector to Base Breakdown Voltage	V _{(BR)CBO}	I _C = 50μA, I _E = 0	120	—	—	160	—	—	V
Emitter to Base Breakdown Voltage	V _{(BR)EBO}	I _E = 50μA, I _C = 0	7	—	—	7	—	—	V
Collector to Emitter Breakdown Voltage	V _{(BR)CEO}	I _C = 1mA, R _{BE} = ∞	120	—	—	160	—	—	V
DC Current Gain	h _{FE1}	V _{CE} = 5V, I _C = 1A *	60	—	200	60	—	200	
DC Current Gain	h _{FE2}	V _{CE} = 5V, I _C = 7A *	40	—	—	40	—	—	
Collector to Emitter Saturation Voltage	V _{CE(sat)}	I _C = 5A, I _B = 0.5A *	—	0.7	1.8	—	0.7	1.8	V
Base to Emitter Voltage	V _{BE}	V _{CE} = 5V, I _C = 5A *	—	1.25	1.7	—	1.25	1.7	V
Gain-Bandwidth Product	f _T	V _{CE} = 10V, I _C =1A, f = 10MHz	50	80	—	50	80	—	MHz
Output Capacitance	C _{ob}	V _{CB} = 10V, I _E =0, f = 1MHz	—	180	300	—	180	300	pF
Rise Time	t _r	I _C = 7.5A, R _L = 4Ω I _{B1} = -I _{B2} = 0.75A	—	0.3	—	—	0.3	—	μs
Storage Time	t _{stg}		—	1.3	—	—	1.3	—	μs
Fall Time	t _f		—	0.2	—	—	0.2	—	μs

* Pulsed: Pulse Width $\leq 300\mu\text{s}$
Duty Cycle $\leq 6\%$