January 1990
Edition 1.1

FUJITSU

PRODUCT PROFILE

2SC2527

Silicon High Speed Power Transistor

1

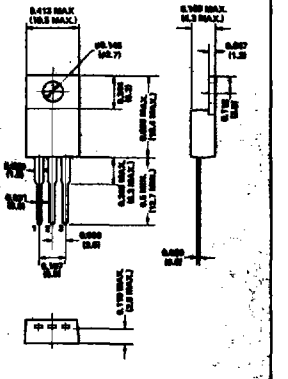
DESCRIPTION

The 2SC2527 is 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 2SC2527 is especially well-suited for High frequency power amplifiers, Audio power amplifiers, Switching regulators and DC-DC Converters.
A PNP complement, 2SA1077 is available.

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

OUTLINE DIMENSION
JEDEC TO-220



1: Base 2: Collector 3: Emitter
Dimension in inches and (millimeters)

ABSOLUTE MAXIMUM RATINGS

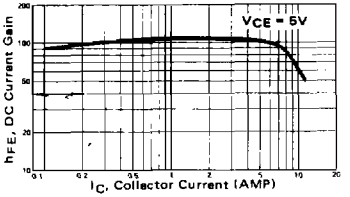
Rating	Symbol	Value	Unit
Collector to Base Voltage	V_{CBO}	120	V
Emitter to Base Voltage	V_{EBO}	7	V
Collector to Emitter Voltage	V_{CEO}	120	V
Collector Current	I_C	10	A
Collector Power Dissipation (T_C = 25°C)	P_C	60	W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	−65~+150	°C

ELECTRICAL CHARACTERISTICS (T_a = 25°C)

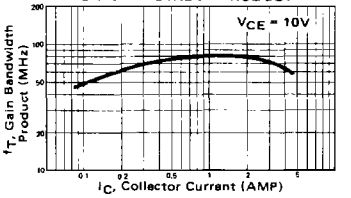
Parameter	Symbol	Test Conditions	Limits			Unit
			Min.	Typ.	Max.	
Collector Cutoff Current	I_{CBO}	V_{CB} = 120V, I_E = 0	–	–	50	μA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 7V, I_C = 0	–	–	50	μA
Collector Cutoff Current	I_{CEO}	V_{CE} = 120V, I_B = 0	–	–	1	mA
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 50μA, I_E = 0	120	–	–	V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	IE = 50μA, I_C = 0	7	–	–	V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 1mA, R_{BE} = ∞	120	–	–	V
DC Current Gain	h_{FE1}	V_{CE} = 5V, I_C = 1A *	60	–	200	
DC Current Gain	h_{FE2}	V_{CE} = 5V, I_C = 5A *	40	–	–	
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 5A, I_B = 0.5A *	–	0.7	1.8	V
Base to Emitter Voltage	V_{BE}	V_{CE} = 5V, I_C = 5A *	–	1.25	1.7	V
Gain-Bandwidth Product	f_T	V_{CE} = 10V, I_C = 1A, f = 10MHz	40	80	–	MHz
Output Capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz	–	180	300	pF
Rise Time	t_r	I_C = 7.5A, R_L = 4Ω I_{B1} = −I_{B2} = 0.75A	–	0.3	–	μs
Storage Time	t_{stg}		–	1.3	–	μs
Fall Time	t_f		–	0.2	–	μs

* Pulsed: Pulse Width ≦ 300μs
Duty Cycle ≦ 6%

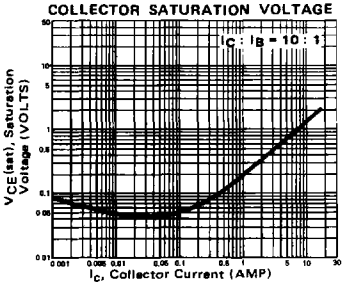
DC CURRENT GAIN



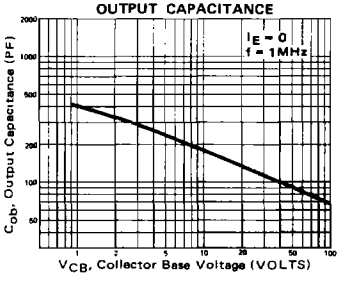
GAIN BANDWIDTH PRODUCT



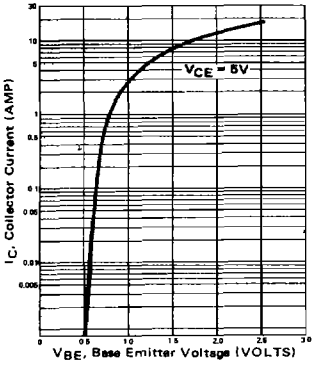
COLLECTOR SATURATION VOLTAGE



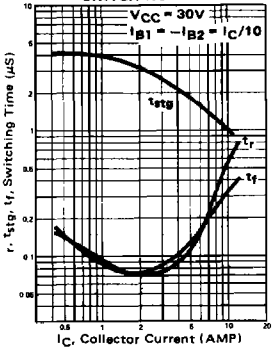
OUTPUT CAPACITANCE



TRANSFER CHARACTERISTICS



SWITCHING TIME



SAFE OPERATING AREAS