

# General Purpose Transistor (50V, 0.15A)

## 2SD2707/2SD2654/2SD2351/2SD2226K/2SD2227S

●Features

- 1) High DC current gain.
- 2) High emitter-base voltage. ( $V_{CE0}=12V$ )
- 3) Low saturation voltage.  
(Typ.  $V_{CE(sat)}=0.3V$  at  $I_C/I_B=50mA/5mA$ )

●Absolute maximum ratings ( $T_a=25^\circ C$ )

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	60	V
Collector-emitter voltage	$V_{CEO}$	50	V
Emitter-base voltage	$V_{EBO}$	12	V
Collector current	$I_C$	0.15	A (DC)
		0.2	A (Pulse)*
Collector power dissipation	$P_C$	0.15	W
		0.2	
		0.3	
Junction temperature	$T_j$	150	$^\circ C$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ C$

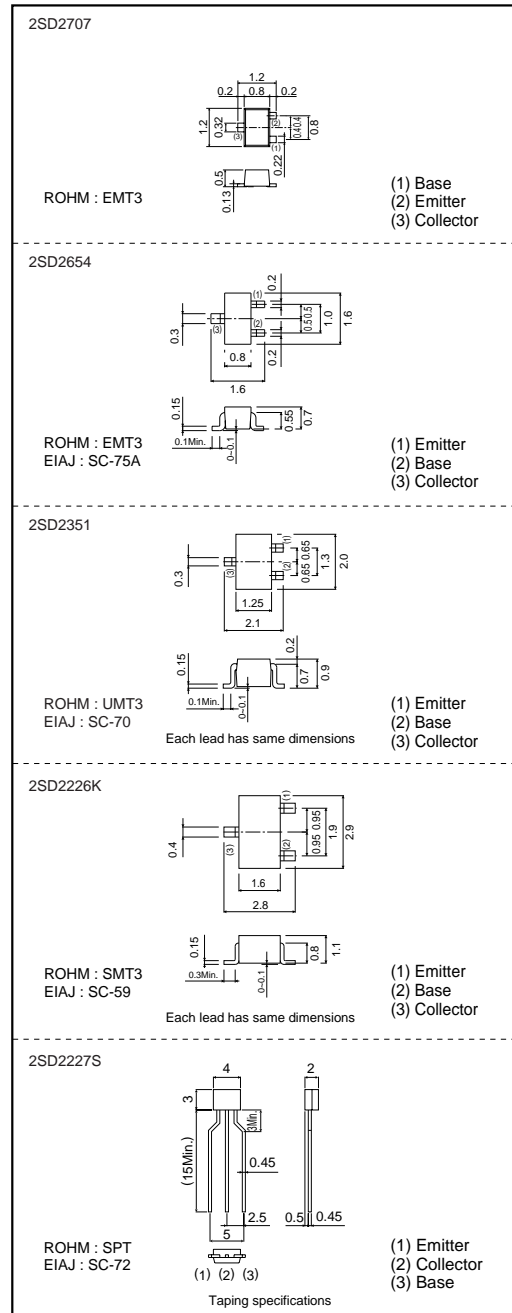
\*Single pulse  $P_w=100ms$

●Packaging specifications and  $h_{FE}$

Type	2SD2707	2SD2654	2SD2351	2SD2226K	2SD2227S
package	VMT3	EMT3	UMT3	SMT3	SPT
$h_{FE}$	VW	VW	VW	VW	VW
Marking	BJ*	BJ*	BJ*	BJ*	-
Code	T2L	TL	T106	T146	TP
Basic ordering unit (pieces)	8000	3000	3000	3000	5000

\* Denotes  $h_{FE}$

●External dimensions (Unit : mm)



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### ●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CB0</sub>	60	–	–	V	I <sub>c</sub> =10μA
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	50	–	–	V	I <sub>c</sub> =1mA
Emitter-base breakdown voltage	BV <sub>EB0</sub>	12	–	–	V	I <sub>E</sub> =10μA
Collector cutoff current	I <sub>cBO</sub>	–	–	0.3	μA	V <sub>CB</sub> =50V
Emitter cutoff current	I <sub>EBO</sub>	–	–	0.3	μA	V <sub>EB</sub> =12V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	–	–	0.3	V	I <sub>c</sub> /I <sub>B</sub> =50mA/5mA
DC current transfer ratio	h <sub>FE</sub>	820	–	2700	–	V <sub>CE</sub> /I <sub>c</sub> =5V/1mA
Transition frequency	f <sub>T</sub>	–	250	–	MHz	V <sub>CE</sub> =5V, I <sub>E</sub> =–10mA, f=100MHz
Output capacitance	C <sub>ob</sub>	–	3.5	–	pF	V <sub>CB</sub> =5V, I <sub>E</sub> =0A, f=1MHz

\* Measured using pulse current.

### ●Electrical characteristics curves

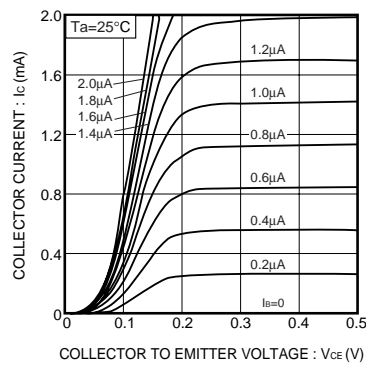


Fig.1 Grounded emitter output characteristics ( I )

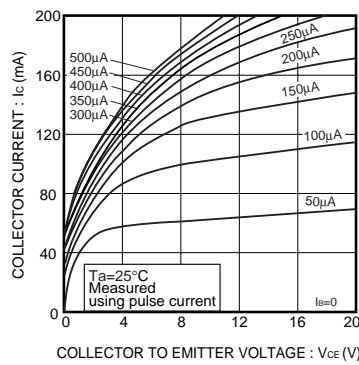


Fig.2 Grounded emitter output characteristics ( II )

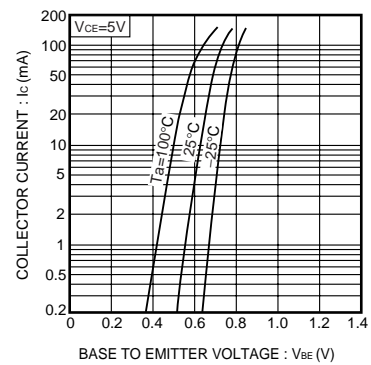


Fig.3 Grounded emitter propagation characteristics

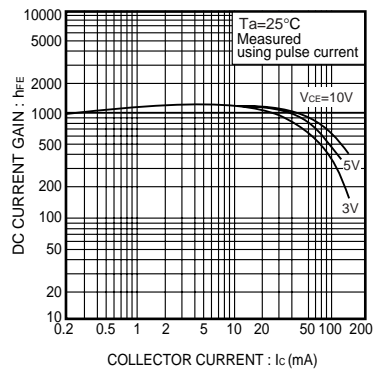


Fig.4 DC current gain vs. collector current ( I )

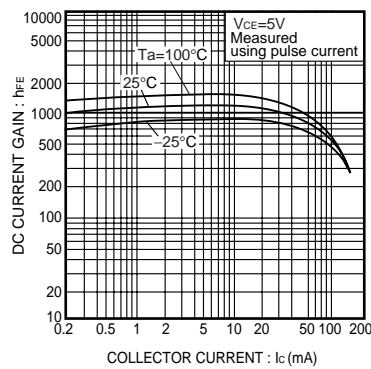


Fig.5 DC current gain vs. collector current ( II )

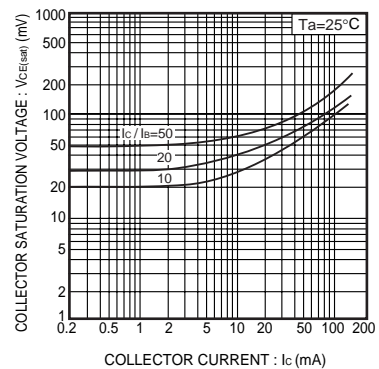


Fig.6 Collector-emitter saturation voltage vs. collector current ( I )

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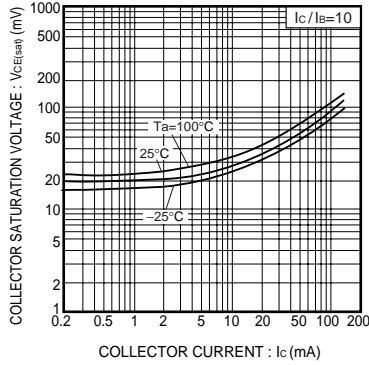


Fig.7 Collector-emitter saturation voltage vs. collector current ( II )

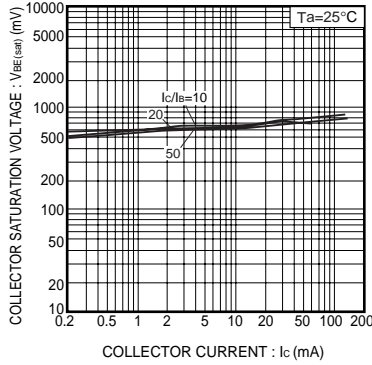


Fig.8 Base-emitter saturation voltage vs. collector current ( I )

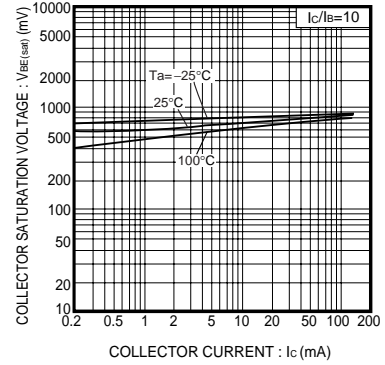


Fig.9 Base-emitter saturation voltage vs. collector current ( II )

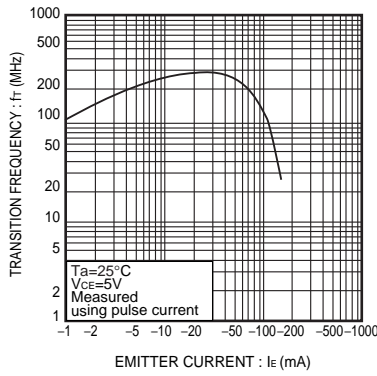


Fig.10 Gain bandwidth product vs. emitter current

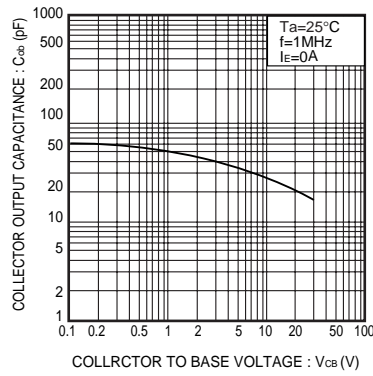


Fig.11 Collector output capacitance vs. collector-base voltage

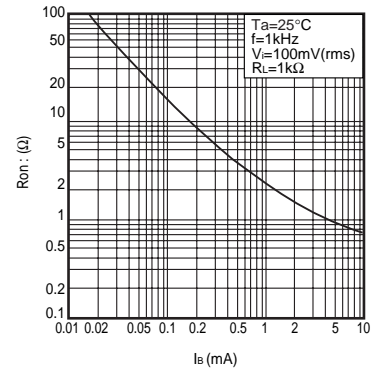


Fig.12 Output on resistance vs. base current

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