General Purpose Transistor (50V, 0.15A)

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

●Features

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

●Absolute maximum ratings (Ta=25°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	2SD2654, 2SD2707	P_C	0.15	W
	2SD2351, 2SD2226K		0.2	
	2SD2227S		0.3	
Junction temperature		Tj	150	°C
Storage temperature		Tstg	−55 to +150	°C

*Single pulse Pw=100ms

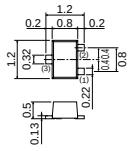
●Packaging specifications and h_{FE}

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 (pleces)	8000	3000	3000	3000	5000

* Denotes h_{FE}

●External dimensions (Unit : mm)

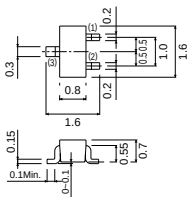
2SD2707



ROHM : EMT3

(1) Base
(2) Emitter
(3) Collector

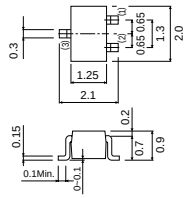
2SD2654



ROHM : EMT3
EIAJ : SC-75A

(1) Emitter
(2) Base
(3) Collector

2SD2351

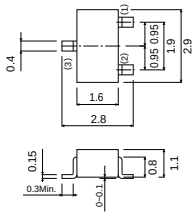


ROHM : UMT3
EIAJ : SC-70

Each lead has same dimensions

(1) Emitter
(2) Base
(3) Collector

2SD2226K

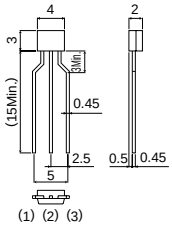


ROHM : SMT3
EIAJ : SC-59

Each lead has same dimensions

(1) Emitter
(2) Base
(3) Collector

2SD2227S



ROHM : SPT
EIAJ : SC-72

(1) (2) (3)

Taping specifications

(1) Emitter
(2) Collector
(3) Base

●Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	60	–	–	V	I_C=10μA
Collector-emitter breakdown voltage	BV_{CEO}	50	–	–	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	12	–	–	V	I_E=10μA
Collector cutoff current	I_{CBO}	–	–	0.3	μA	V_{CB}=50V
Emitter cutoff current	I_{EBO}	–	–	0.3	μA	V_{EB}=12V
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	–	0.3	V	I_C/I_B=50mA/5mA *
DC current transfer ratio	h_{FE}	820	–	2700	–	V_{CE}/I_C=5V/1mA *
Transition frequency	f_T	–	250	–	MHz	V_{CE}=5V, I_E=–10mA, f=100MHz *
Output capacitance	Cob	–	3.5	–	pF	V_{CB}=5V, I_E=0A, f=1MHz

* Measured using pulse current.

●Electrical characteristics curves

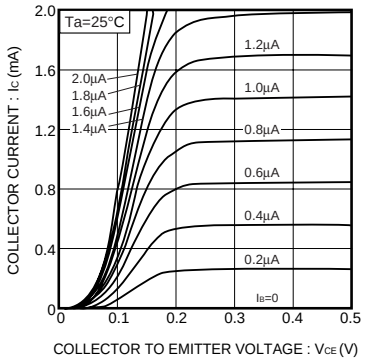


Fig.1 Grounded emitter output characteristics (I)

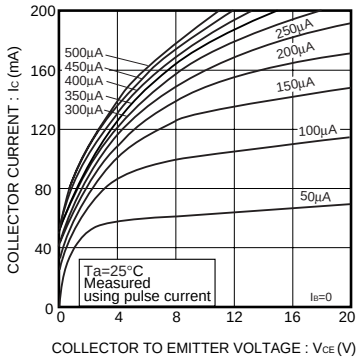


Fig.2 Grounded emitter output characteristics (II)

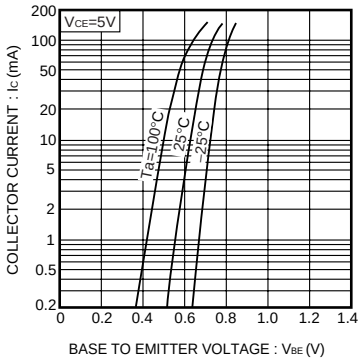


Fig.3 Grounded emitter propagation characteristics

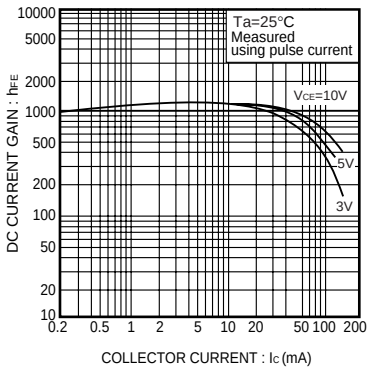


Fig.4 DC current gain vs. collector current (I)

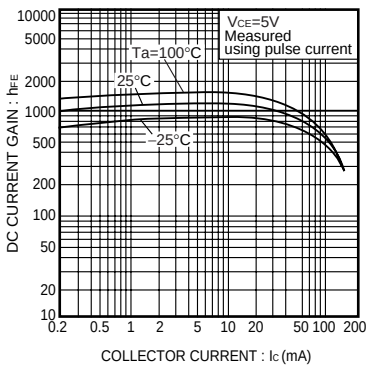


Fig.5 DC current gain vs. collector current (II)

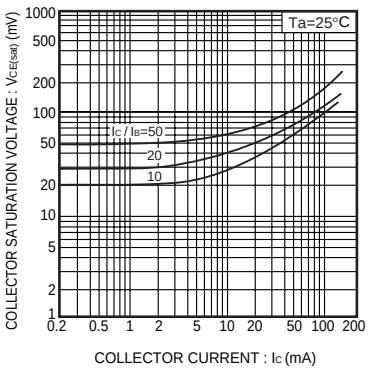


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

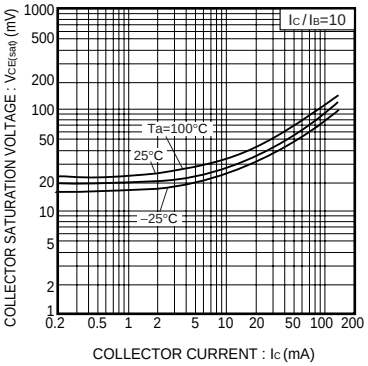


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

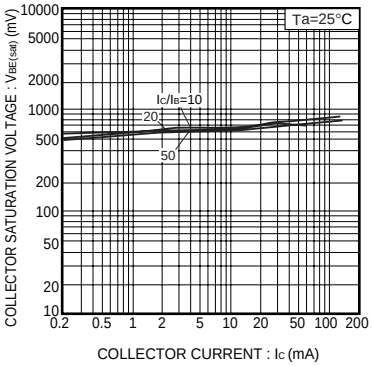


Fig.8 Base-emitter saturation voltage vs. collector current (I)

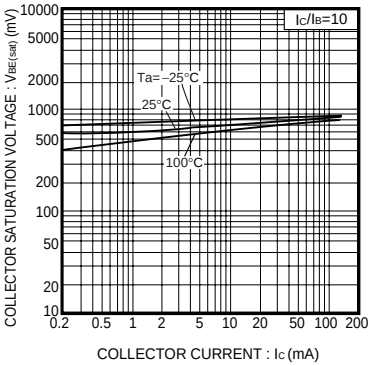


Fig.9 Base-emitter saturation voltage vs. collector current (II)

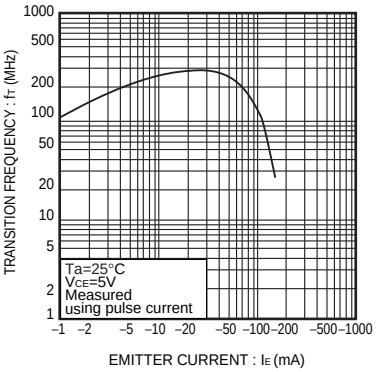


Fig.10 Gain bandwidth product vs. emitter current

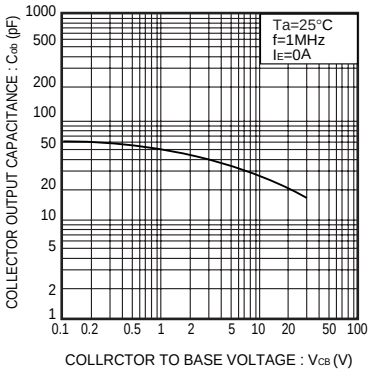


Fig.11 Collector output capacitance vs. collector-base voltage

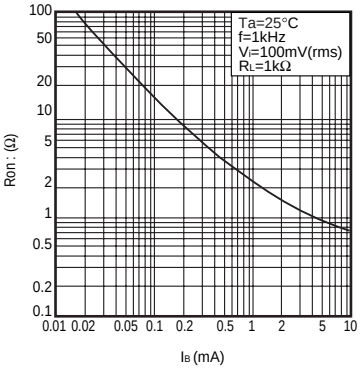


Fig.12 Output on resistance vs. base current

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