



**TO-251/TO-252-2L Plastic-Encapsulate Transistors**

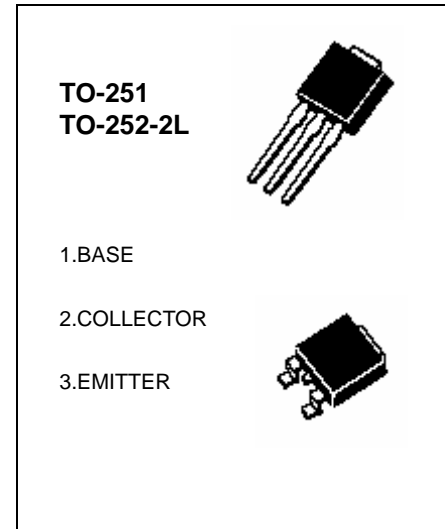
**2SD2118** TRANSISTOR (NPN)

**FEATURES**

- Low  $V_{CE(sat)}$ .  $V_{CE(sat)} = 0.25V$  (Typ.)( $I_C/I_B = 4A / 0.1A$ )
- Excellent DC current gain characteristics.

**MAXIMUM RATINGS ( $T_A=25^\circ C$  unless otherwise noted)**

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	50	V
$V_{CEO}$	Collector-Emitter Voltage	20	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current -Continuous	5	A
$P_C$	Collector Power Dissipation	1	W
$T_J$	Junction Temperature	150	$^\circ C$
$T_{stg}$	Storage Temperature	-55-150	$^\circ C$



**ELECTRICAL CHARACTERISTICS ( $T_{amb}=25^\circ C$  unless otherwise specified)**

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=50\mu A, I_E=0$	50			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	20			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=50\mu A, I_C=0$	6			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=40V, I_E=0$			0.5	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=5V, I_C=0$			0.5	$\mu A$
DC current gain	$h_{FE}$	$V_{CE}=2V, I_C=0.5A$	120		390	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=4A, I_B=100mA$			1	V
Transition frequency	$f_T$	$V_{CE}=6V, I_C=50mA, f=100MHz$		150		MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=20V, I_E=0, f=1MHz$		30		pF

**CLASSIFICATION OF  $h_{FE}$**

Rank	Q	R
Range	120-270	180-390

# Typical Characteristics

# 2SD2118

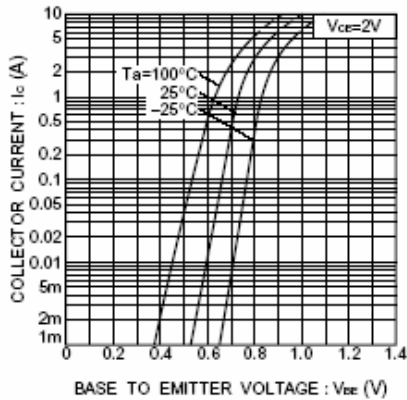


Fig.1 Grounded emitter propagation characteristics

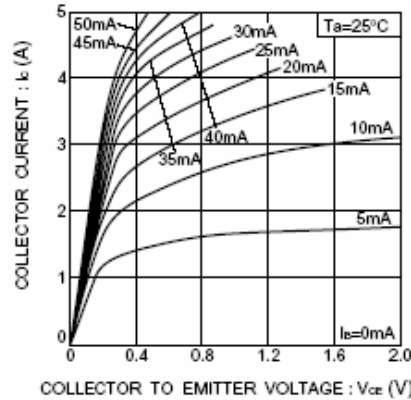


Fig.2 Grounded emitter output characteristics

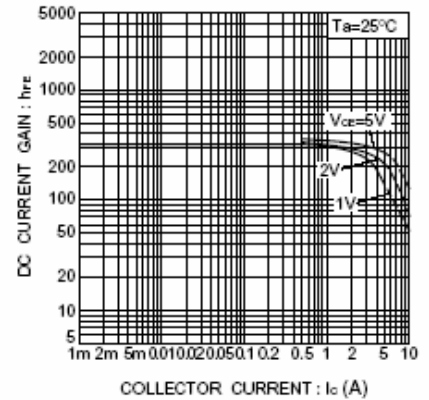


Fig.3 DC current gain vs. collector current ( I )

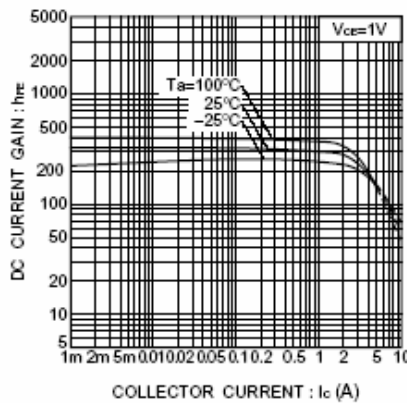


Fig.4 DC current gain vs. collector current ( II )

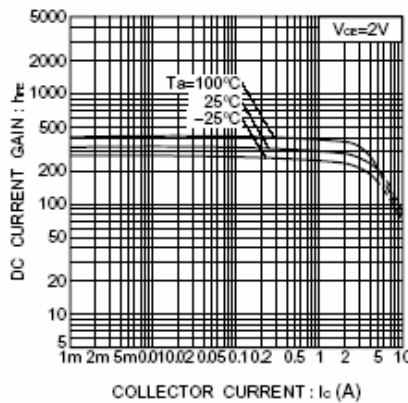


Fig.5 DC current gain vs. collector current ( III )

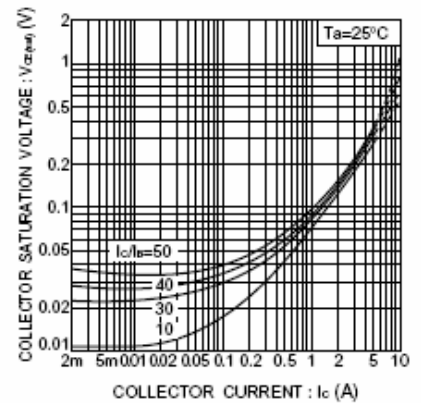


Fig.6 Collector-emitter saturation voltage vs. collector current ( I )

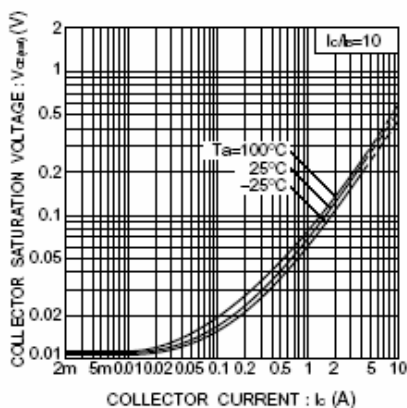


Fig.7 Collector-emitter saturation voltage vs. collector current ( II )

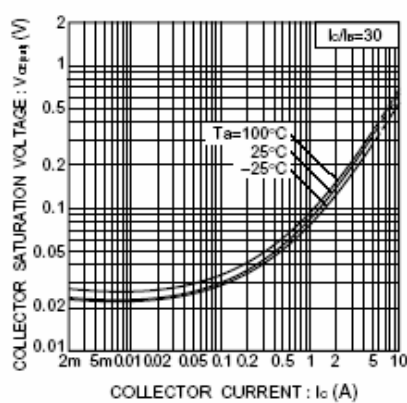


Fig.8 Collector-emitter saturation voltage vs. collector current ( III )

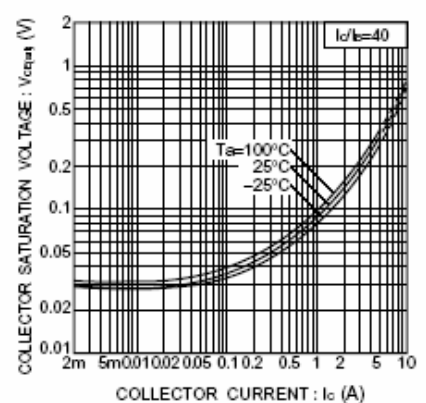


Fig.9 Collector-emitter saturation voltage vs. collector current ( IV )

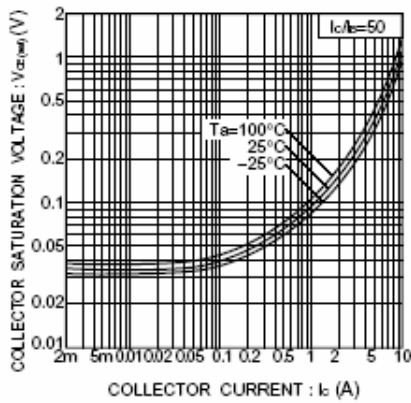


Fig.10 Collector-emitter saturation voltage vs. collector current (V)

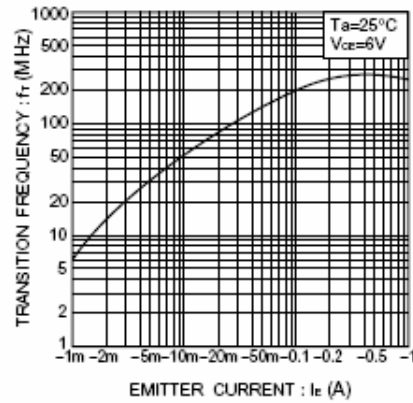


Fig.11 Gain bandwidth product vs. emitter current

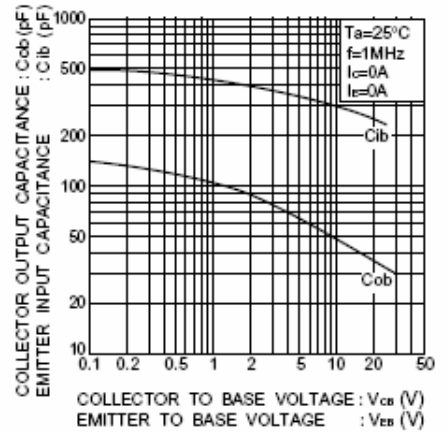


Fig.12 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage