

RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

FEATURE

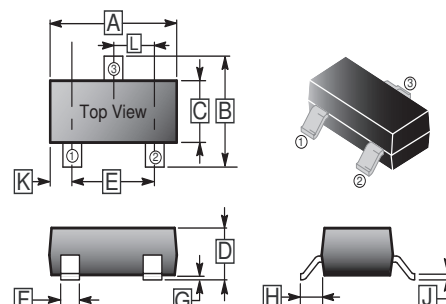
- Low collector to emitter saturation voltage $V_{CE(sat)}$

CLASSIFICATION OF h_{FE} (1)

Product-Rank	2SD602-Q	2SD602-R	2SD602-S
Range	85~170	120~240	170~340
Marking Code	WQ1	WR1	WS1

Product-Rank	2SD602A-Q	2SD602A-R	2SD602A-S
Range	85~170	120~240	170~340
Marking Code	XQ	XR	XS

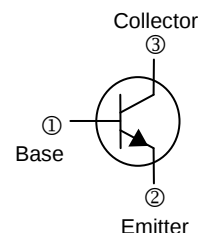
SOT-23



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.80	3.04	G	0.09	0.18
B	2.10	2.55	H	0.45	0.60
C	1.20	1.40	J	0.08	0.177
D	0.89	1.15	K	0.6 REF.	
E	1.78	2.04	L	0.89	1.02
F	0.30	0.50			

PACKAGE INFORMATION

Package	MPQ	LeaderSize
SOT-23	3K	7' inch



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter		Symbol	Ratings	Unit
Collector to Base Voltage	2SD602	V_{CBO}	30	V
	2SD602A		60	
Collector to Emitter Voltage	2SD602	V_{CEO}	25	V
	2SD602A		50	
Emitter to Base Voltage		V_{EBO}	5	V
Collector Current - Continuous		I_C	500	mA
Collector Power Dissipation		P_C	200	mW
Thermal Resistance From Junction to Ambient		$R_{\theta JA}$	625	$^\circ\text{C} / \text{W}$
Junction, Storage Temperature		T_J, T_{STG}	150, -55~150	$^\circ\text{C}$

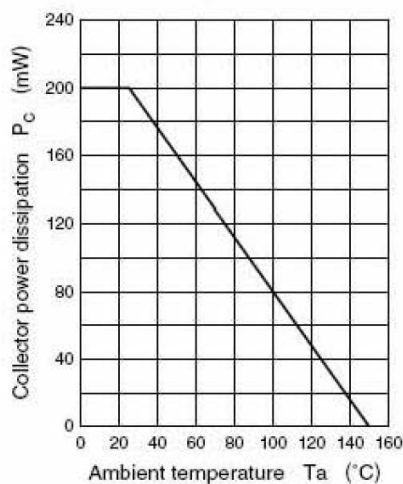
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Collector to Base Breakdown Voltage	2SD602	$V_{(BR)CBO}$	30	-	-	V	$I_C=10\mu\text{A}, I_E=0$
	2SD602A		60	-	-		
Collector to Emitter Breakdown Voltage	2SD602	$V_{(BR)CEO}$	25	-	-	V	$I_C=10\text{mA}, I_B=0$
	2SD602A		50	-	-		
Emitter to Base Breakdown Voltage		$V_{(BR)EBO}$	5	-	-	V	$I_E=10\mu\text{A}, I_C=0$
Collector Cut-Off Current		I_{CBO}	-	-	0.1	μA	$V_{CB}=20\text{V}, I_E=0$
Emitter Cut-Off Current		I_{EBO}	-	-	0.1	μA	$V_{EB}=5\text{V}, I_C=0$
DC Current Gain		$h_{FE(1)}^*$	85	-	340		$V_{CE}=10\text{V}, I_C=150\text{mA}$
		$h_{FE(2)}^*$	40	-	-		$V_{CE}=10\text{V}, I_C=500\text{mA}$
Collector-Emitter Saturation Voltage		$V_{CE(sat)}^*$	-	-	0.6	V	$I_C=300\text{mA}, I_B=30\text{mA}$
Transition Frequency		f_T	-	200	-	MHz	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=200\text{MHz}$
Collector Output Capacitance		C_{ob}	-	-	15	pF	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$

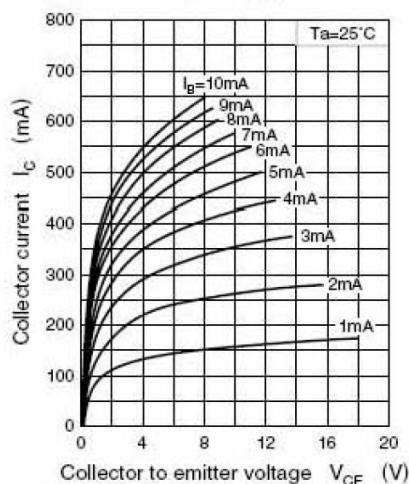
*Pulse test: Pulse width $\leq 350\mu\text{s}$, duty cycle $\leq 2.0\%$

CHARACTERISTIC CURVES

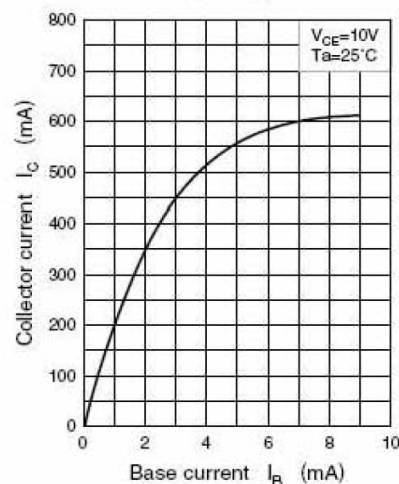
$P_C - T_a$



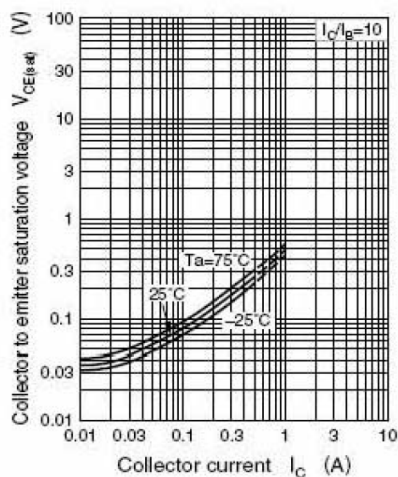
$I_C - V_{CE}$



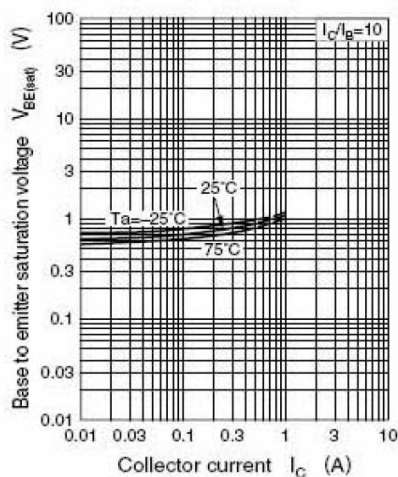
$I_C - I_B$



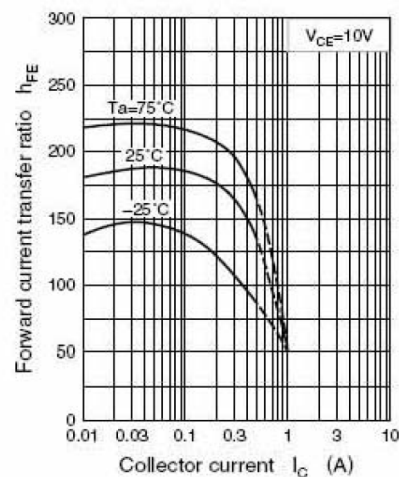
$V_{CE(sat)} - I_C$



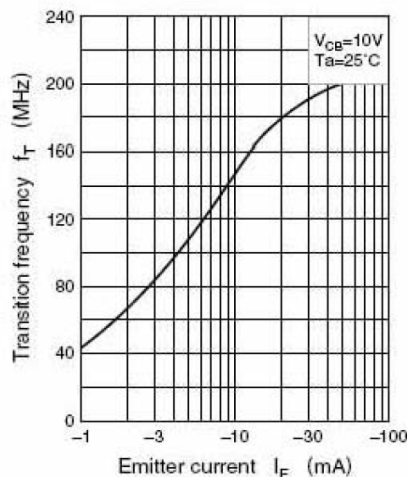
$V_{BE(sat)} - I_C$



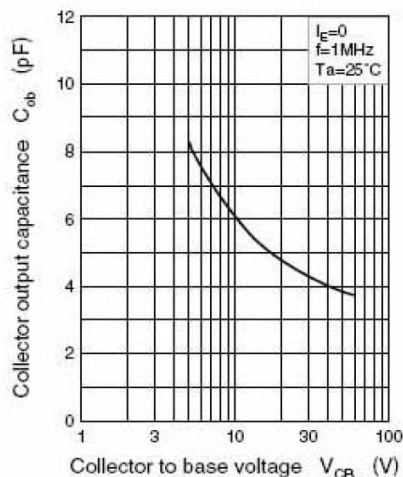
$h_{FE} - I_C$



$f_T - I_E$



$C_{ob} - V_{CB}$



$V_{CER} - R_{BE}$

