



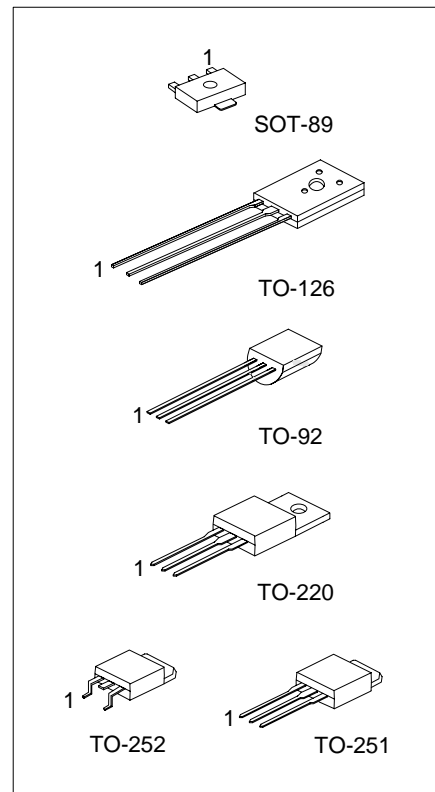
2SD1060

NPN SILICON TRANSISTOR

NPN PLANAR SILICON TRANSISTOR

■ FEATURES

- * Low collector-to-emitter saturation voltage:
 $V_{CE(SAT)}=0.4V \text{ max}/I_C=3A, I_B=0.3A$



*Pb-free plating product number: 2SD1060L

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
2SD1060-x-AB3-R	2SD1060L-x-AB3-R	SOT-89	B	C	E	Tape Reel
2SD1060-x-T60-K	2SD1060L-x-T60-K	TO-126	B	C	E	Bulk
2SD1060-x-T92-B	2SD1060L-x-T92-B	TO-92	E	C	B	Tape Box
2SD1060-x-T92-K	2SD1060L-x-T92-K	TO-92	E	C	B	Bulk
2SD1060-x-TA3-T	2SD1060L-x-TA3-T	TO-220	B	C	E	Tube
2SD1060-x-TM3-T	2SD1060L-x-TM3-T	TO-251	B	C	E	Tube
2SD1060-x-TN3-R	2SD1060L-x-TN3-R	TO-252	B	C	E	Tape Reel
2SD1060-x-TN3-T	2SD1060L-x-TN3-T	TO-252	B	C	E	Tube

<p>2SD1060L-x-AB3-R</p>	<p>(1) Packing Type (2) Package Type (3) Rank (4) Lead Plating</p>	<p>(1) B: Tape Box, K: Bulk, R: Tape Reel, T: Tube (2) AB3: SOT-89, T60: TO-126, T92: TO-92, TA3: TO-220, TM3: TO-251, TN3: TO-252 (3) x: refer to Classification of h_{FE1} (4) L: Lead Free Plating, Blank: Pb/Sn</p>
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■ ABSOLUTE MAXIMUM RATINGS (Ta=25)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector to Base Voltage		V_{CBO}	60	V
Collector to Emitter Voltage		V_{CEO}	50	V
Emitter to Base Voltage		V_{EBO}	6	V
Collector Current		I_C	5	A
Collector Current (Pulse)		I_{CP}	9	A
Collector Dissipation	SOT-89	P_C	500	mW
	TO-126/TO-251		1	W
	TO-252/TO-220		2	W
	TO-92		625	mW
Junction Temperature		T_J	+150	
Storage Temperature		T_{STG}	-40 ~ +150	

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS (Ta=25)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-to-Base Breakdown Voltage	BV_{CBO}	$I_C = 1\text{mA}, I_E = 0$	60			V
Collector-to-Emitter Breakdown Voltage	BV_{CEO}	$I_C = 1\text{mA}, R_{BE} = \infty$	50			V
Emitter-to-Base Breakdown Voltage	BV_{EBO}	$I_C = 0, I_E = 1\text{mA}$	6			V
Collector Cut-Off Current	I_{CBO}	$V_{CB} = 40\text{V}, I_E = 0$			0.1	mA
Emitter Cut-Off Current	I_{EBO}	$V_{EB} = 4\text{V}, I_C = 0$			0.1	mA
DC Current Gain	h_{FE1}	$V_{CE} = 2\text{V}, I_C = 1\text{A}$	70		360	
	h_{FE2}	$V_{CE} = 2\text{V}, I_C = 3\text{A}$	30			
Gain Bandwidth Product	f_T	$V_{CE} = 5\text{V}, I_C = 1\text{A}$		30		MHZ
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}, f = 1\text{MHz}$		100		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = 3\text{A}, I_B = 0.3\text{A}$			0.4	V
Turn-ON Time	t_{ON}	See specified test circuit		0.1		μs
Storage Time	t_{STG}	See specified test circuit		1.4		μs
Fall Time	t_F	See specified test circuit		0.2		μs

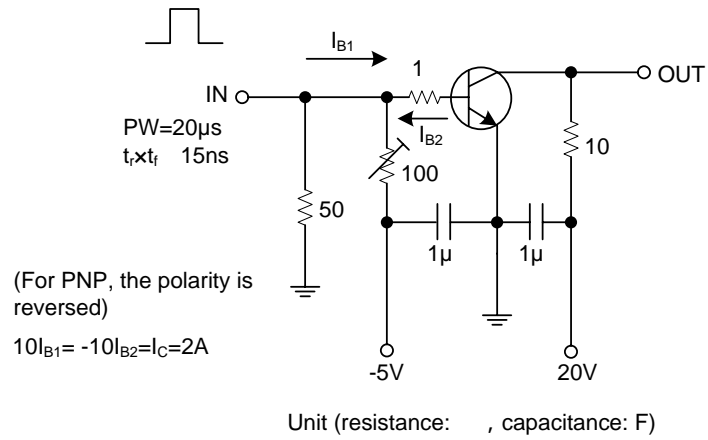
■ CLASSIFICATION of h_{FE1}

RANK	Q	R	S
RANGE	70-140	100-200	180-360

2SD1060

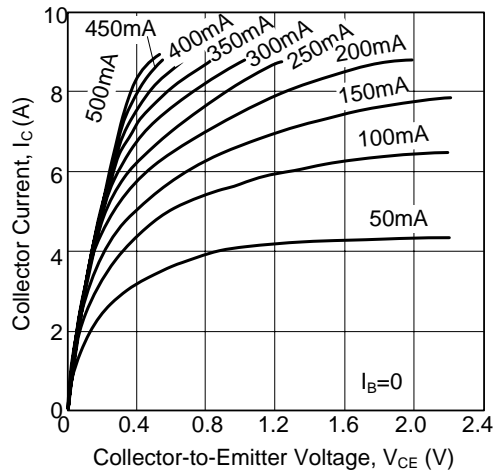
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SWITCHING TIME TEST CIRCUIT

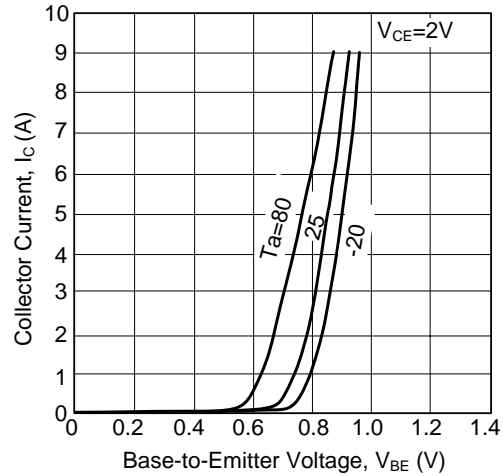


TYPICAL CHARACTERISTICS

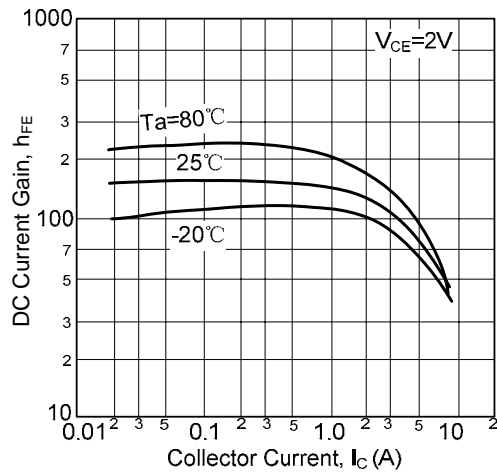
Collector Current vs. Collector-to-Emitter Voltage



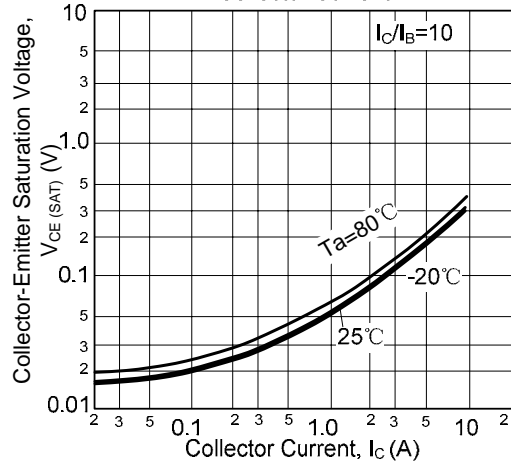
Collector Current vs. Base-to-Emitter Voltage



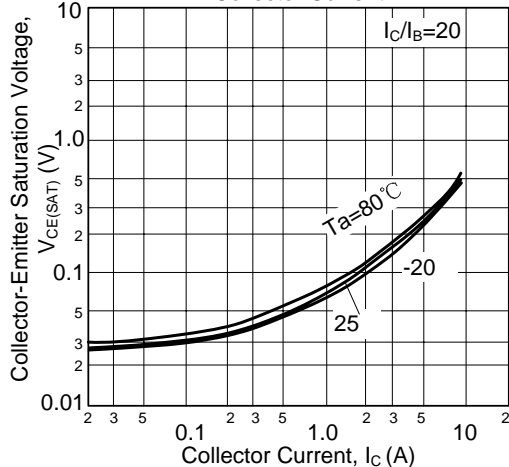
DC Current Gain vs. Collector Current



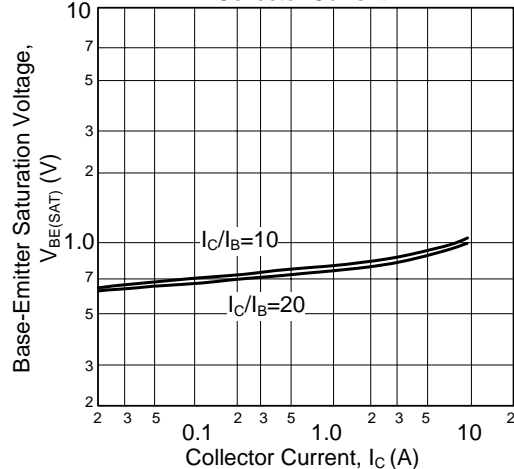
Collector-Emitter Saturation Voltage vs. Collector Current



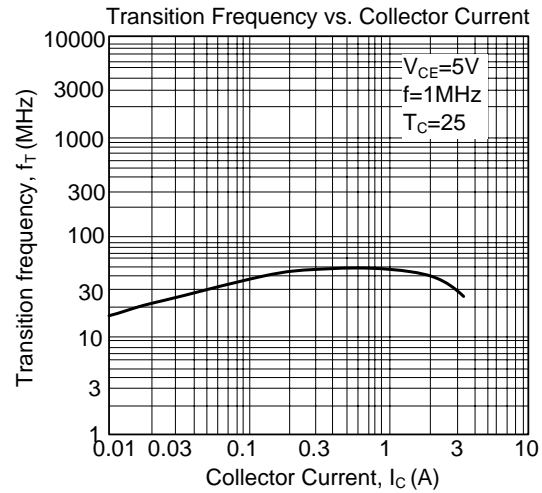
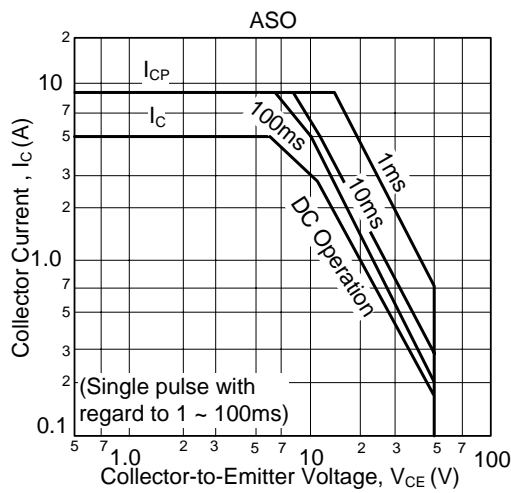
Collector-Emitter Saturation Voltage vs. Collector Current



Base-Emitter Saturation Voltage vs. Collector Current



■ TYPICAL CHARACTERISTICS(Cont.)



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