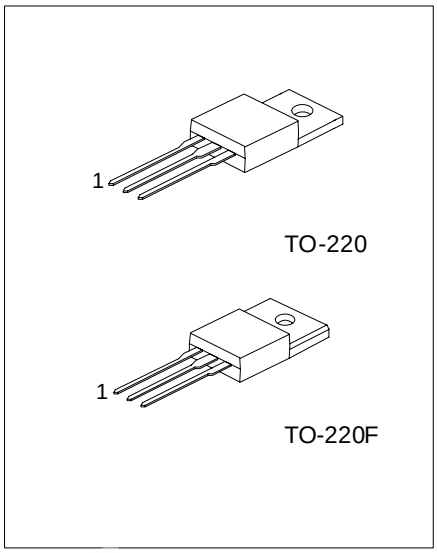
N5027

NPN SILICON TRANSISTOR

HIGH VOLTAGE AND HIGH RELIABILITY NPN TRANSISTOR



*Pb-free plating product number: N5027L

■ FEATURES

* High Voltage (V_{CEO} = 800V)
* High Speed Switching
* Wide SOA

■ ORDERING INFORMATION

Order Number		Package	Pin Assignment			Packing
Normal	Lead Free Plating		1	2	3	
N5027-x-TA3-F-T	N5027L-x-TA3-F-T	TO-220	B	C	E	Tube
N5027-x-TF3-F-T	N5027L-x-TF3-F-T	TO-220F	B	C	E	Tube

N5027L-x-TA3-F-T
(1)Packing Type
(2)Pin Assignment
(3)Package Type
(4)Rank
(5)Lead Plating

(1) T: Tube
(2) refer to Pin Assignment
(3) TA3: TO-220, TF3: TO-220F
(4) x: refer to Classificationof h_{FE1}
(5) L: Lead Free Plating Blank: Pb/Sn

■ ABSOLUTE MAXIMUM RATINGS (Tc = 25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	V_{CBO}	850	V
Collector-Emitter Voltage	V_{CEO}	800	V
Collector-Emitter Voltage	V_{EBO}	7	V
Peak Collector Current	I_C	3	A
Collector Current (Pulse)	I_{CP}	10	A
Base Current	I_B	1.5	A
Peak Collector Consume Dissipation	P_C	50	W
Peak Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~ +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 (T_C= 25℃, unless otherwise specified.)

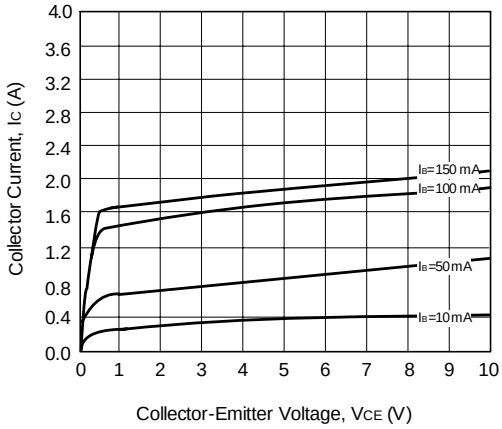
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV_{CBO}	I_C=1mA, I_E=0	850			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=5mA, I_B=0	800			V
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E=1mA, I_C=0	7			V
Collector-Emitter sustaining Voltage	$V_{CEX(SUS)}$	I_C=1.5A, I_{B1}= -I_{B2}=0.3A L=2mH, Clamped	800			V
Collector Cut-off Current	I_{CBO}	V_{CB}=800V, I_E=0			10	μA
Emitter Cut-off Current	I_{EBO}	V_{EB}=5V, I_C=0			10	μA
DC Current Gain	$h_{FE\ 1}$	V_{CE}=5V, I_C=0.2A	10		40	
	$h_{FE\ 2}$	V_{CE}=5V, I_C=1A	6			
Collector-Emitter Saturation Voltage	$V_{CE\ (SAT)}$	I_C=1A, I_B=0.3A			1.1	V
Base-Emitter Saturation Voltage	$V_{BE\ (SAT)}$	I_C=1.5A, I_B=0.3A			1.5	V
Output Capacitance	Cob	V_{CB}=10V, f=1MHz, I_E=0		60		pF
Current Gain Bandwidth Product	f_T	V_{CE}=10V, I_C=0.2A		15		MHz
Turn ON Time	t_{ON}	V_{CC}=400V			0.5	μs
Storage Time	t_{STG}	I_C=5I_{B1}= -2.5I_{B2}=2A			3	μs
Fall Time	t_F	R_L=200Ω			0.3	μs

■ CLASSIFICATION of h_{FE1}

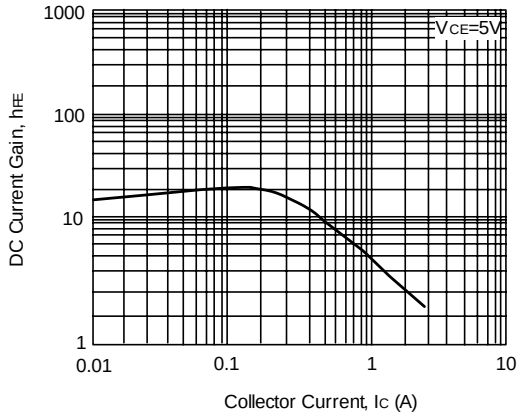
RANK	N	R	O
RANGE	10 ~ 20	15 ~ 30	20 ~ 40

TYPICAL CHARACTERISTICS

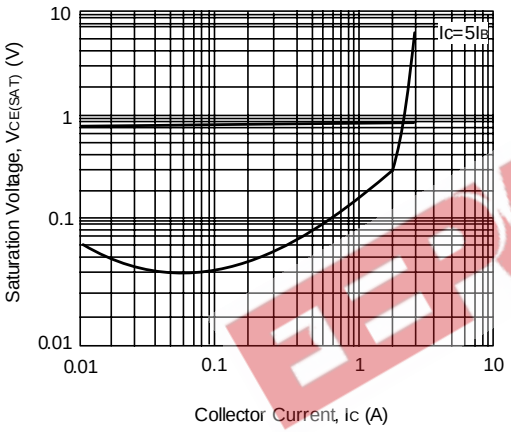
Static Characteristic
Collector Current vs. Collector-Emitter Voltage



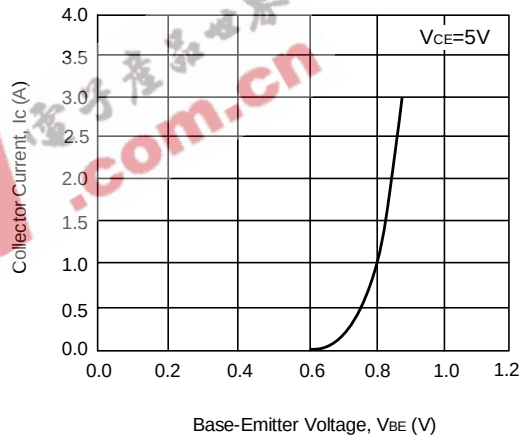
DC Current Gain vs. Collector Current



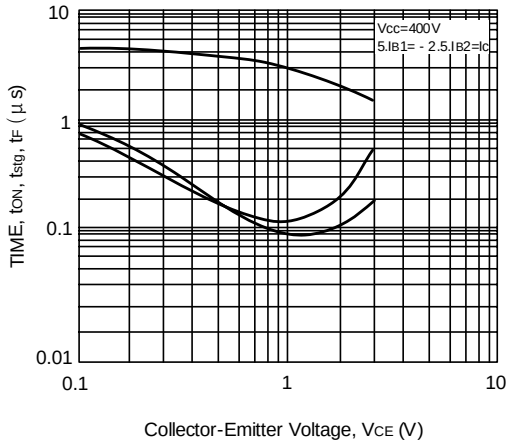
Saturation Voltage vs. Collector Current



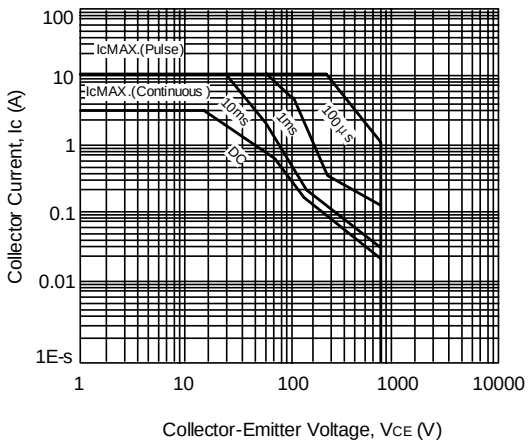
Collector Current vs. Base-Emitter Voltage



Switching Time
Time vs. Collector-Emitter Voltage

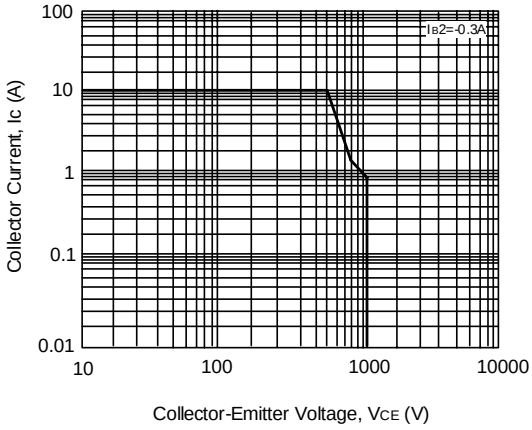


Safe Operating Area
Collector Current vs. Collector-Emitter Voltage



■ TYPICAL CHARACTERISTICS(Cont.)

Reverse Operating Area
Collector Current vs. Collector-Emitter Voltage



Power Derating
Power Dissipation vs. Case Temperature