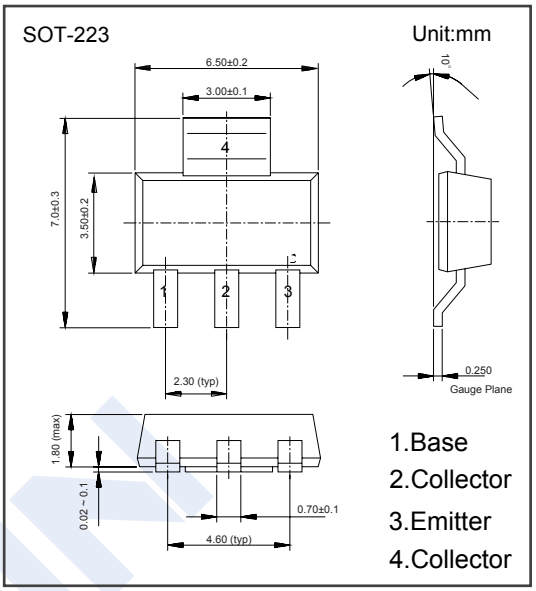
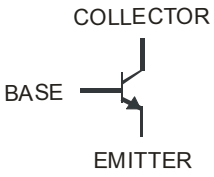
NPN Transistors

DNLS350E (KNLS350E)



■ Features

- Collector Current Capability I_C=3A
- Collector Emitter Voltage V_{CEO}=50V
- Complementary to DPLS350E
- Lead Free By Design/RoHS Compliant
- "Green" Device



■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CBO}	60	V
Collector - Emitter Voltage	V_{CEO}	50	
Emitter - Base Voltage	V_{EBO}	6	
Collector Current - Continuous	I_C	3	A
Collector Current - Pulse	I_{CP}	5	
Base Current - Pulse	I_{BP}	1	
Power Dissipation (Note.1)	P_D	1	W
Power Dissipation (Note.2)		2	
Thermal Resistance, Junction to Ambient (Note.1)	$R_{\theta JA}$	125	°C/W
Thermal Resistance, Junction to Ambient (Note.2)		62.5	
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	-55 to 150	

Note.1: Device mounted on FR-4 PCB; pad layout as shown on page 4 or in Diodes Inc.

Note.2: Device mounted on FR-4 PCB with 1inch^2 copper pad layout.

NPN Transistors

DNLS350E (KNLS350E)

■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	I_C= 100 μA, I_E= 0	60			V
Collector- emitter breakdown voltage	V_{CEO}	I_C= 10 mA, I_B= 0	50			V
Emitter - base breakdown voltage	V_{EBO}	I_E= 100 μ A, I_C= 0	5			V
Collector-base cut-off current	I_{CBO}	V_{CB}= 50 V , I_E= 0			0.1	uA
		V_{CB}= 50 V , I_E= 0 , Ta = 150℃			50	uA
Emitter cut-off current	I_{EBO}	V_{EB}= 5V , I_C=0			0.1	uA
Collector-emitter saturation voltage (Note.1)	$V_{CE(sat)}$	I_C=500 mA, I_B=50mA			90	mV
		I_C=1 A, I_B=50mA			170	mV
		I_C=2 A, I_B=200mA			290	mV
Base - emitter saturation voltage	$V_{BE(sat)}$	I_C=2 A, I_B=200mA (Note.1)			1.2	V
Base-emitter turn-on voltage	$V_{BE(on)}$	V_{CE}= 2V, I_C= 1 A (Note.1)			1.1	V
Equivalent On-Resistance	$R_{CE(sat)}$	I_E= 2A, I_B= 200mA (Note.1)			145	mΩ
DC current gain (Note.1)	h_{FE}	V_{CE}= 2V, I_C= 500mA	200			
		V_{CE}= 2V, I_C= 1 A	200			
		V_{CE}= 2V, I_C= 2 A	100			
Collector output capacitance	C_{ob}	V_{CB}= 10V, I_E= 0,f=1MHz			30	pF
Transition frequency	f_T	V_{CE}= 5V, I_C= 100mA,f=100MHz	100			MHz

Note.1: Pulse width = 300μs. Duty cycle ≤2%.

■ Marking

Marking	N35

■ Typical Characterisitics

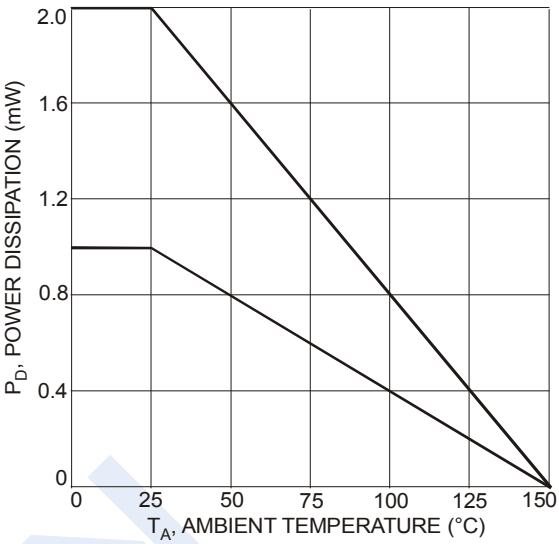


Fig. 1 Max Power Dissipation vs. Ambient Temperature

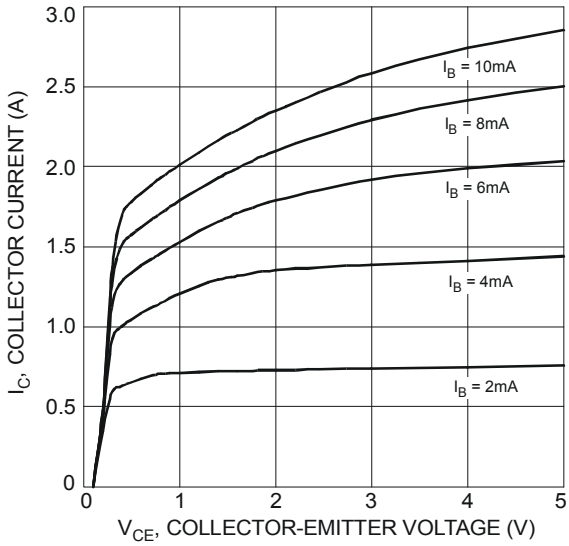


Fig. 2 Typical Collector Current vs. Collector-Emitter Voltage

NPN Transistors

DNLS350E (KNLS350E)

■ Typical Characterisitics

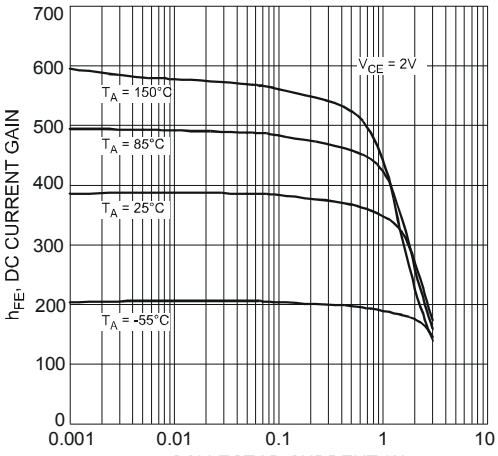


Fig. 3 Typical DC Current Gain vs. Collector Current

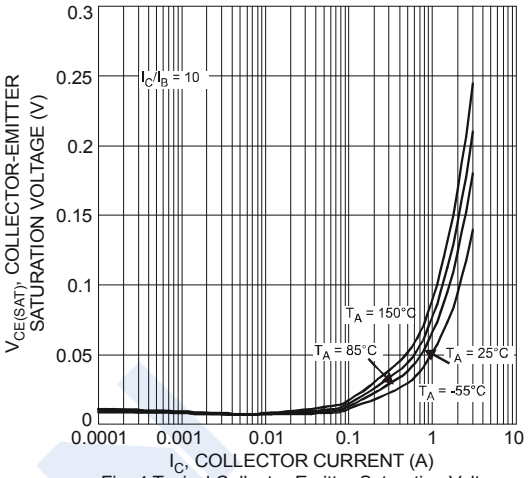


Fig. 4 Typical Collector-Emitter Saturation Voltage vs. Collector Current

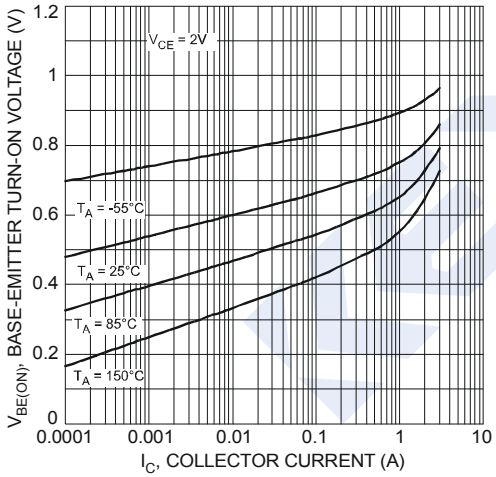


Fig. 5 Typical Base-Emitter Turn-On Voltage vs. Collector Current

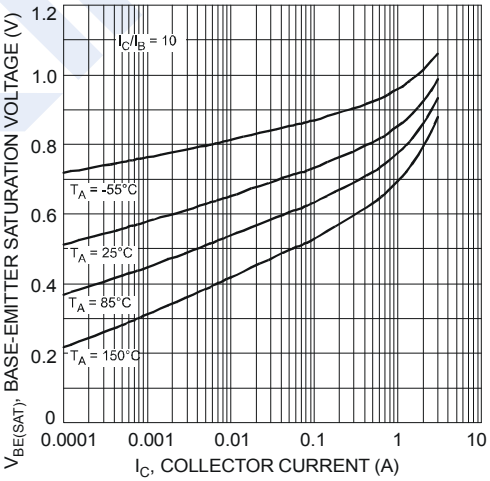


Fig. 6 Typical Base-Emitter Saturation Voltage vs. Collector Current

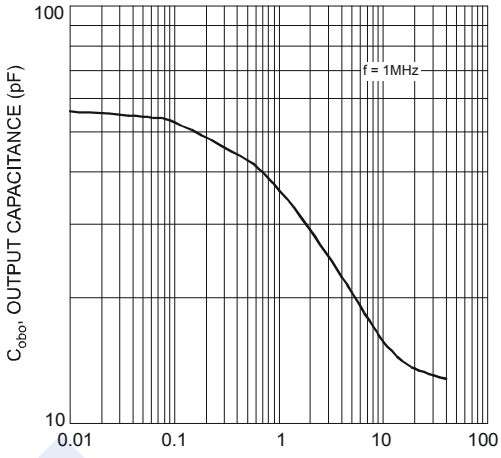


Fig. 7 Typical Output Capacitance Characteristics

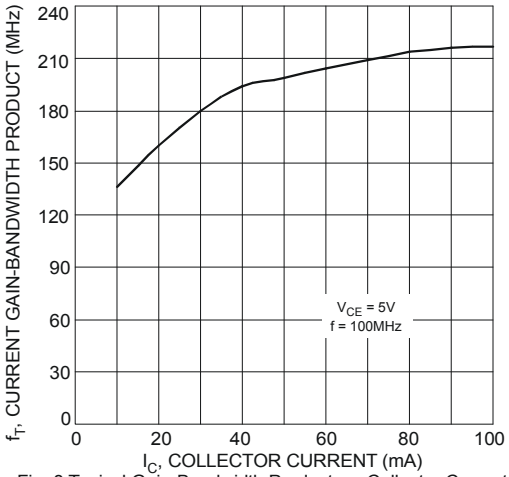


Fig. 8 Typical Gain-Bandwidth Product vs. Collector Current