NEC

DARLINGTON POWER TRANSISTOR
2SD2217

NPN SILICON EPITAXIAL TRANSISTOR (DARLINGTON CONNECTION) FOR LOW-FREQUENCY POWER AMPLIFIERS AND LOW-SPEED SWITCHING

The 2SD2217 is a mold power transistor developed for low-frequency power amplifiers and low-speed switching. This transistor is ideal for direct driving from the IC out to drivers such as pulse motor drivers and relay drivers in OA and FA equipment.

QUALITY GRADES

- Standard

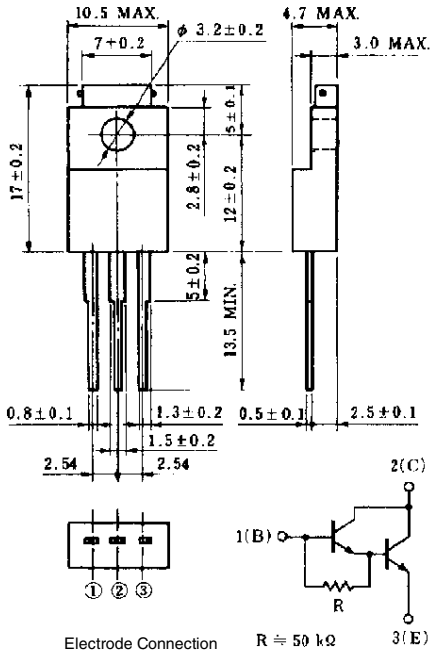
  Please refer to “Quality Grades on NEC Semiconductor Devices” (Document No. C11531E) published by NEC Corporation to know the specification of quality grade on the devices and its recommended applications.

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	300	V
Collector to emitter voltage	V_{CEO}	300	V
Emitter to base voltage	V_{EBO}	7	V
Collector current	$I_{C(DC)}$	300	mA
Collector current	$I_{C(pulse)}$*	600	mA
Base current	$I_{B(DC)}$	30	mA
Total power dissipation	P_T (Tc = 25°C)	25	W
Total power dissipation	P_T (Ta = 25°C)	2.0	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	–55 to +150	°C

* PW ≤ 10 ms, duty cycle ≤ 50%

PACKAGE DRAWING (UNIT: mm)



Electrode Connection
1. Base (B)
2. Collector (C)
3. Emitter (E)

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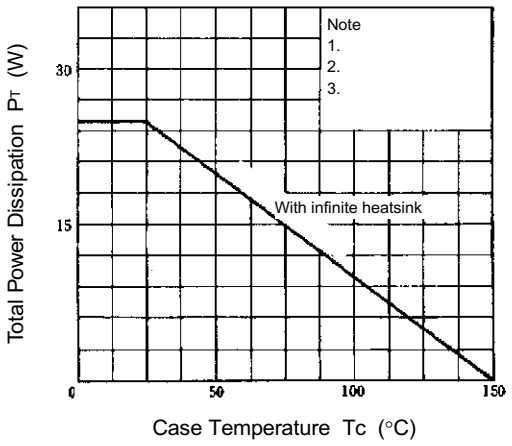
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	I_{CBO}	V_{CB} = 300 V, I_E = 0			10	μA
Collector cutoff current	I_{CEO}	V_{CE} = 60 V, R_{BE} = ∞			10	μA
Emitter cutoff current	I_{EBO}	V_{EB} = 5 V, I_C = 0			10	μA
DC current gain	h_{FE1}**	V_{CE} = 1.5 V, I_C = 20 mA	1,000			
DC current gain	h_{FE2}**	V_{CE} = 1.5 V, I_C = 100 mA	1,500	7,000	30,000	
Collector saturation voltage	$V_{CE(sat)}$**	I_C = 100 mA, I_B = 0.2 mA		0.8	1.5	V
Base saturation voltage	$V_{BE(sat)}$**	I_C = 100 mA, I_B = 0.2 mA		1.4	2.0	V
Gain bandwidth product	f_T	V_{CE} = 1.5 V, I_C = 20 mA		45		MHz
Collector capacitance	C_{ob}	V_{CB} = 10 V, I_E = 0, f = 1.0 MHz		22		pF

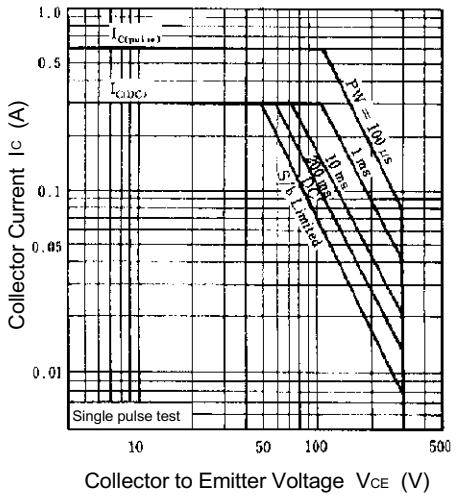
** Pulse test PW ≤ 350 μs, duty cycle ≤ 2%

TYPICAL CHARACTERISTICS (Ta = 25°C)

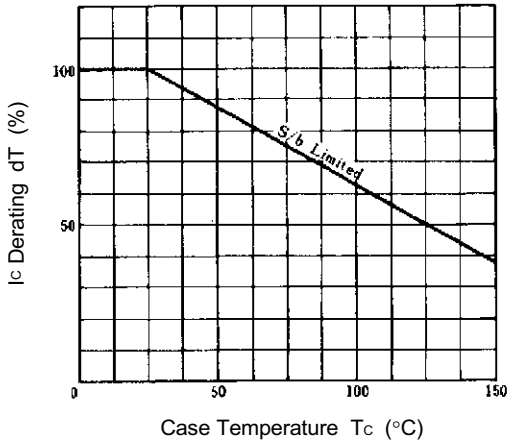
TOTAL POWER DISSIPATION vs. CASE TEMPERATURE



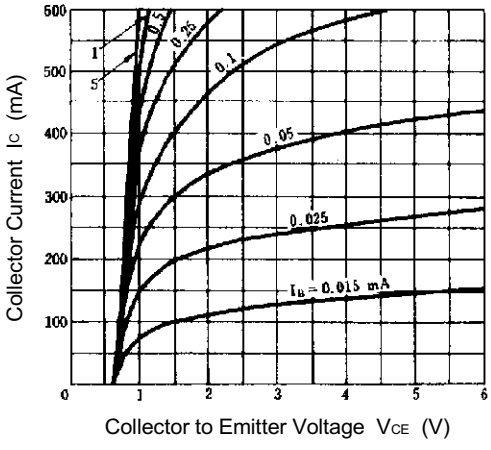
FORWARD BIAS SAFE OPERATING AREA



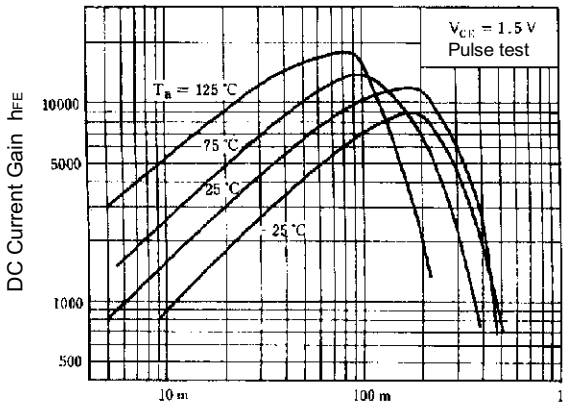
DERATING CURVE OF SAFE OPERATING AREA



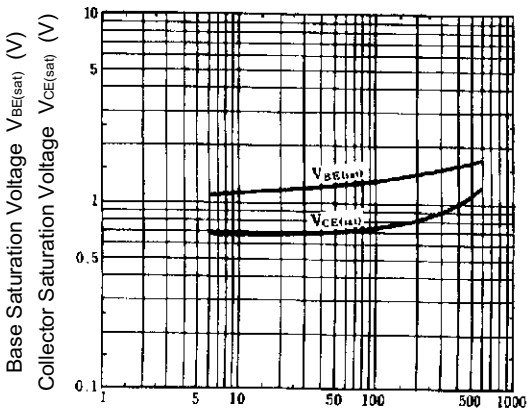
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



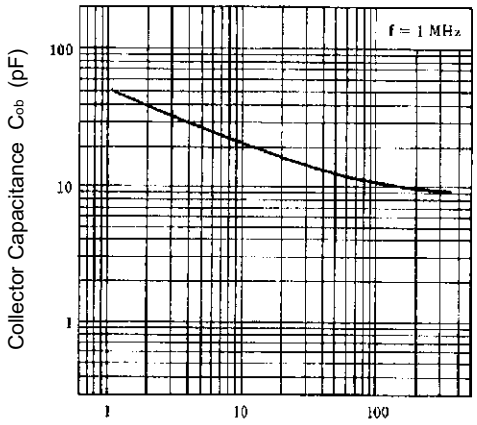
DC CURRENT GAIN vs.
COLLECTOR CURRENT



COLLECTOR AND BASE SATURATION
VOLTAGE vs. COLLECTOR CURRENT



COLLECTOR TO BASE CAPACITANCE
vs. COLLECTOR TO BASE VOLTAGE



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