Silicon NPN Darlington Transistor

2N6057

Power Linear and Switching

60V / 12A

DATASHEET

OEM –SGS Ates

Source: SGS Ates Databook 1977

EPITAXIAL-BASE NPN

2N 6057
2N 6058
2N 6059

PRELIMINARY DATA

POWER DARLINGTONS

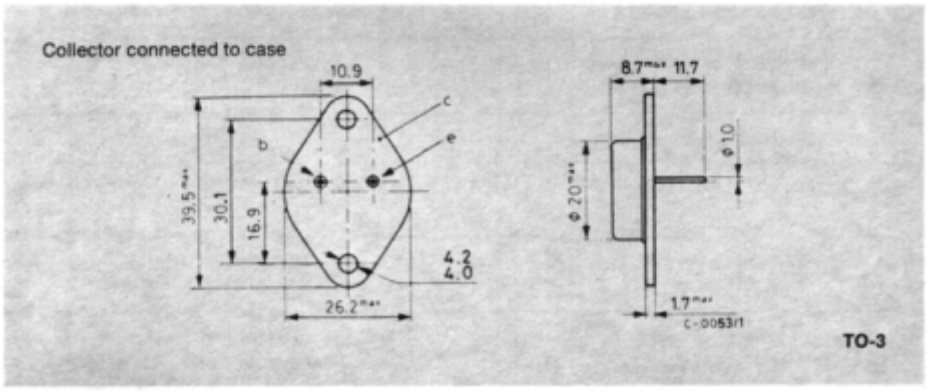
The 2N 6057, 2N 6058 and 2N 6059 are silicon epitaxial-base NPN transistors in monolithic Darlington configuration and are mounted in Jedec TO-3 metal case. They are intended for use in power linear and switching applications.
The complementary PNP types are the 2N 6050, 2N 6051 and 2N 6052 respectively.

ABSOLUTE MAXIMUM RATINGS

		2N6057	2N6058	2N6059
V_{CBO}	Collector-base voltage ($I_E = 0$)	60V	80V	100V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	60V	80V	100V
V_{EBO}	Emitter-base voltage ($I_C = 0$)		5V	
I_C	Collector current		12A	
I_{CM}	Collector peak current		20A	
I_B	Base current		0.2A	
P_{tot}	Total power dissipation at $T_{case} \leq 25°C$		150W	
T_{stg}	Storage temperature		-65 to 200°C	
T_j	Junction temperature		200°C	

MECHANICAL DATA

Dimensions in mm



2N 6057
2N 6058
2N 6059

THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal resistance junction-case	max	1.17	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise specified)

Parameter		Test conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector cutoff current (I_B = 0)	for **2N6057** V_{CE} = 30V for **2N6058** V_{CE} = 40V for **2N6059** V_{CE} = 50V			1 1 1	mA mA mA
I_{CEX}	Collector cutoff current (V_{EB} = 1.5V)	for **2N6057** V_{CE} = 60V for **2N6058** V_{CE} = 80V for **2N6059** V_{CE} = 100V T_{case} = 150 °C for **2N6057** V_{CE} = 60V for **2N6058** V_{CE} = 80V for **2N6059** V_{CE} = 100V			0.5 0.5 0.5 5 5 5	mA mA mA mA mA mA
I_{EBO}	Emitter cutoff current (I_C = 0)	V_{EB} = 5V			2	mA
$V_{CEO\ (sus)}$*	Collector-emitter sustaining voltage (I_B = 0)	I_C = 100mA for **2N6057** for **2N6058** for **2N6059**	 60 80 100			 V V V
$V_{CE\ (sat)}$*	Collector-emitter saturation voltage	I_C = 6A I_B = 24mA I_C = 12A I_B = 120mA			2 3	V V
$V_{BE\ (sat)}$*	Base-emitter saturation voltage	I_C = 12A I_B = 120mA			4	V
V_{BE}*	Base-emitter voltage	I_C = 6A V_{CE} = 3V			2.8	V
h_{FE}*	DC current gain	I_C = 6A V_{CE} = 3V I_C = 12A V_{CE} = 3V	750 100		18000	— —
h_{fe}	Small signal current gain	I_C = 5A V_{CE} = 3V f = 1 MHz	4			—
C_{CBO}	Collector-base capacitance	V_{CB} = 10V f = 1 MHz I_E = 0			300	pF

* Pulsed: pulse duration = 300 μs, duty cycle = 1.5%