SGS6386
SGS6387
SGS6388

EPITAXIAL-BASE NPN

PRELIMINARY DATA

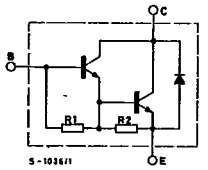
POWER DARLINGTONS

The SGS6386, SGS6387 and SGS6388 are silicon epitaxial-base NPN transistors in monolithic Darlington configuration and are mounted in SOT-82 plastic package.They are intended for use in low e medium frequency power applications.

ABSOLUTE MAXIMUM RATINGS

		SGS6386	SGS6387	SGS6388
V_{CBO}	Collector-base voltage ($I_E=0$)	40V	60V	80V
V_{CER}	Collector-emitter voltage ($R_{BE}=100\Omega$)	40V	60V	80V
V_{CEV}	Collector-emitter voltage ($V_{BE}=-1.5V$)	40V	60V	80V
V_{CEO}	Collector-emitter voltage ($I_B=0$)	40V	60V	80V
V_{EBO}	Emitter-base voltage ($I_C=0$)	5V	5V	5V
I_C	Collector current	8A	10A	10A
I_{CM}	Collector peak current		15A	
I_B	Base current		0.25A	
P_{tot}	Total power dissipation at $T_{case} \leq 25°C$		65W	
T_{stg}	Storage temperature		-65 to 150°C	
T_j	Junction temperature		150°C	

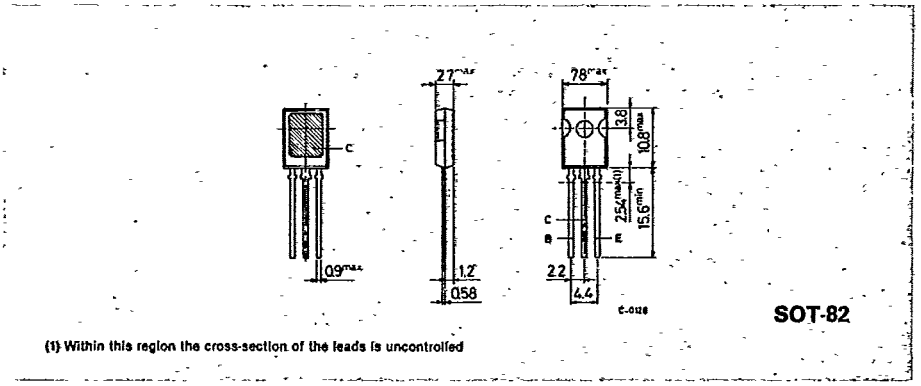
INTERNAL SCHEMATIC DIAGRAM



R1 ≅ 10KΩ
R2 ≅ 150Ω

MECHANICAL DATA

Dimensions in mm



SOT-82

(1) Within this region the cross-section of the leads is uncontrolled

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THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal resistance junction-case	max	1.92	°C/W

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

Parameter		Test conditions	Min.	Typ.	Max.	Unit
I_{CEV}	Collector cutoff current (V_{BE} = -1.5V)	V_{CE} = rated V_{CEO} V_{CE} = rated V_{CEO} T_{case} = 125°C			0.3 3	mA mA
I_{CEO}	Collector cutoff current (I_B = 0)	V_{CE} = rated V_{CEO}			1	mA
I_{EBO}	Emitter cutoff current (I_C = 0)	V_{EB} = 5V			5	mA
$V_{CEO(sus)}$*	Collector-emitter sustaining voltage	I_C = 0.2A for **SGS6386** for **SGS6387** for **SGS6388**	 40 60 80			 V V V
$V_{CER(sus)}$*	Collector-emitter sustaining voltage (R_{BE} = 100Ω)	I_C = 0.2A for **SGS6386** for **SGS6387** for **SGS6388**	 40 60 80			 V V V
$V_{CEV(sus)}$*	Collector-emitter sustaining voltage (V_{BE} = -1.5V)	I_C = 0.2A for **SGS6386** for **SGS6387** for **SGS6388**	 40 60 80			 V V V
$V_{CE(sat)}$*	Collector-emitter saturation voltage	for **SGS6386** I_C = 3A I_B = 6mA for **SGS6387, SGS6388** I_C = 5A I_B = 10mA for **SGS6386** I_C = 6A I_B = 60mA for **SGS6387,SGS6388** I_C = 8A I_B = 80mA			2 2 3 3	V V V V

SGS6386
SGS6387
SGS6388

ELECTRICAL CHARACTERISTICS (Continued)

Parameter		Test conditions	Min.	Typ.	Max.	Unit
V_{BE}*	Base-emitter voltage	for **SGS6386** I_C=3A V_{CE}=3V			2.8	V
		for **SGS6387, SGS6388** I_C=5A V_{CE}=3V			2.8	V
		for **SGS6386** I_C=6A V_{CE}=3V			4.5	V
		for **SGS6387,SGS6388** I_C=8A V_{CE}=3V			4.5	V
h_{FE}*	DC current gain	for **SGS6386** I_C=3A V_{CE}=3V	1000		20K	—
		for **SGS6387, SGS6388** I_C=5A V_{CE}=3V	1000		20K	—
		for **SGS6386** I_C=6A V_{CE}=3V	100			—
		for **SGS6387,SGS6388** I_C=8A V_{CE}=3V	100			—
V_F*	Parallel diode forward voltage	for **SGS6386** $-I_C$=6A			4	V
		for **SGS6387/6388** $-I_C$=8A			4	V
h_{fe}*	Small signal current gain	I_C=1A V_{CE}=10V f=1MHz	20			—
		I_C=1A V_{CE}=10V f=1KHz	1000			—
C_{CBO}	Collector-base capacitance	V_{CB}=10V I_E=0 f=1MHz			200	pF
$E_{s/b}$	Second breakdown energy	L=12mH R_{BE}=100Ω V_{BE}≤-1.5V I_C=3.65A	80			mJ

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

For characteristics curves see BDX33/BDX34 series