

Silicon Diffused Power Transistor

BU2525DF

GENERAL DESCRIPTION

New generation, high-voltage, high-speed switching npn transistor with integrated damper diode in a plastic full-pack envelope intended for use in horizontal deflection circuits of large screen colour television receivers up to 32 kHz.

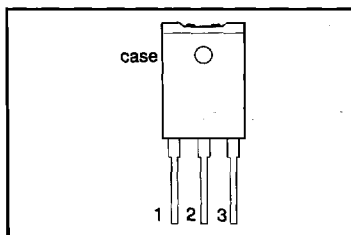
QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V_{CESM}	Collector-emitter voltage peak value	$V_{BE} = 0 V$	-	1500	V
V_{CEO}	Collector-emitter voltage (open base)		-	800	V
I_C	Collector current (DC)		-	12	A
I_{CM}	Collector current peak value		-	30	A
P_{tot}	Total power dissipation	$T_{hs} \leq 25 ^\circ C$	-	45	W
V_{CEsat}	Collector-emitter saturation voltage	$I_C = 8.0 A; I_B = 1.6 A$	-	5.0	V
I_{Csat}	Collector saturation current		8.0	-	A
t_s	Storage time	$I_{Csat} = 8.0 A; I_{B(end)} = 1.1 A$	3.0	4.0	μs

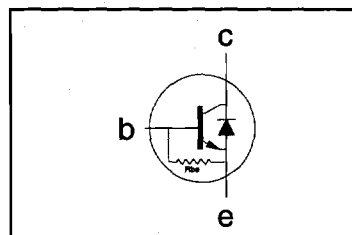
PINNING - SOT199

PIN	DESCRIPTION
1	base
2	collector
3	emitter
case	isolated

PIN CONFIGURATION



SYMBOL



LIMITING VALUES

Limiting values in accordance with the Absolute Maximum Rating System (IEC 134)

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V_{CESM}	Collector-emitter voltage peak value	$V_{BE} = 0 V$	-	1500	V
V_{CEO}	Collector-emitter voltage (open base)		-	800	V
I_C	Collector current (DC)		-	12	A
I_{CM}	Collector current peak value		-	30	A
I_B	Base current (DC)		-	8	A
I_{BM}	Base current peak value		-	12	A
$-I_{B(AV)}$	Reverse base current	average over any 20 ms period	-	200	mA
$-I_{BM}$	Reverse base current peak value ¹		-	9	A
P_{tot}	Total power dissipation	$T_{hs} \leq 25 ^\circ C$	-	45	W
T_{stg}	Storage temperature		-65	150	$^\circ C$
T_j	Junction temperature		-	150	$^\circ C$

THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
$R_{th\ j-hs}$	Junction to heatsink	without heatsink compound	-	3.7	K/W
$R_{th\ j-hs}$	Junction to heatsink	with heatsink compound	-	2.8	K/W
$R_{th\ j-a}$	Junction to ambient	in free air	35	-	K/W

¹ Turn-off current.

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ISOLATION LIMITING VALUE & CHARACTERISTIC

 $T_{hs} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
V_{isol}	Repetitive peak voltage from all three terminals to external heatsink	R.H. $\leq 65\%$; clean and dustfree	-		2500	V
C_{isol}	Capacitance from T2 to external heatsink	$f = 1\text{ MHz}$	-	22	-	pF

STATIC CHARACTERISTICS

 $T_{hs} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CES}	Collector cut-off current ²	$V_{BE} = 0\text{ V}; V_{CE} = V_{CESMmax}$ $V_{BE} = 0\text{ V}; V_{CE} = V_{CESMmax}$ $T_j = 125\text{ }^{\circ}\text{C}$	-	-	1.0 2.0	mA mA
I_{EBO}	Emitter cut-off current	$V_{EB} = 6.0\text{ V}; I_C = 0\text{ A}$	72	110	218	mA
R_{eb}	Base-emitter resistance	$V_{EB} = 6.0\text{ V}$	-	55	-	Ω
BV_{EBO}	Emitter-base breakdown voltage	$I_B = 600\text{ mA}$	7.5	13.5	-	V
V_{CEOust}	Collector-emitter sustaining voltage	$I_B = 0\text{ A}; I_C = 100\text{ mA}$ $L = 25\text{ mH}$	800	-	-	V
V_{CEsat}	Collector-emitter saturation voltage	$I_C = 8.0\text{ A}; I_B = 1.6\text{ A}$	-	-	5.0	V
V_{BEsat}	Base-emitter saturation voltage	$I_C = 8.0\text{ A}; I_B = 1.6\text{ A}$	-	-	1.1	V
h_{FE}	DC current gain	$I_C = 1\text{ A}; V_{CE} = 5\text{ V}$	-	11	-	
h_{FE}		$I_C = 8\text{ A}; V_{CE} = 5\text{ V}$	5	7	9.5	
V_F	Diode forward voltage	$I_F = 8\text{ A}$	-	1.6	2.0	V

DYNAMIC CHARACTERISTICS

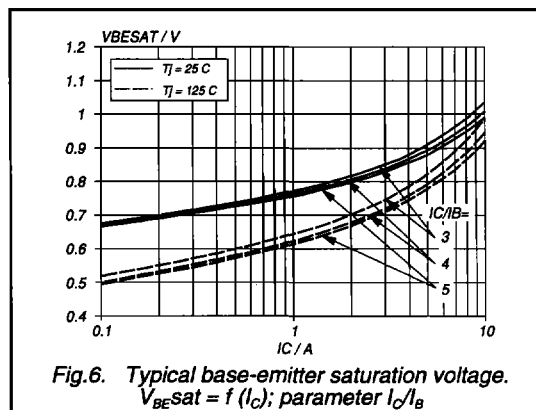
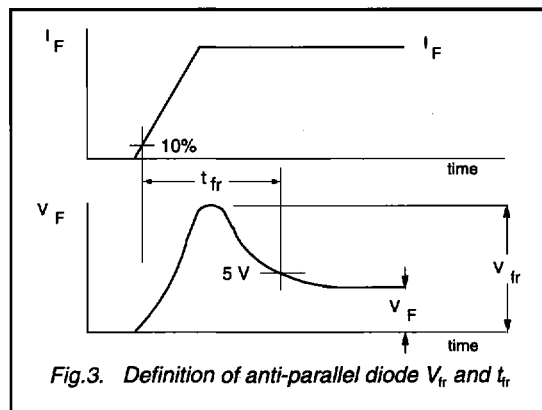
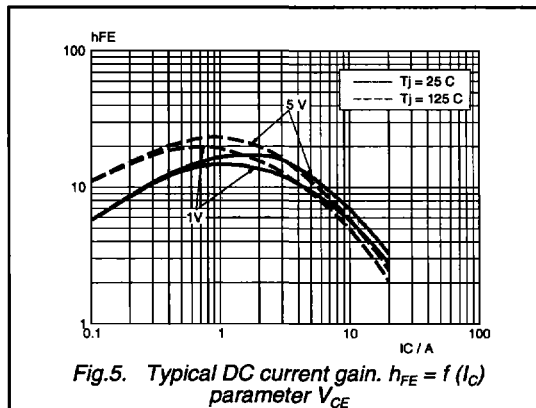
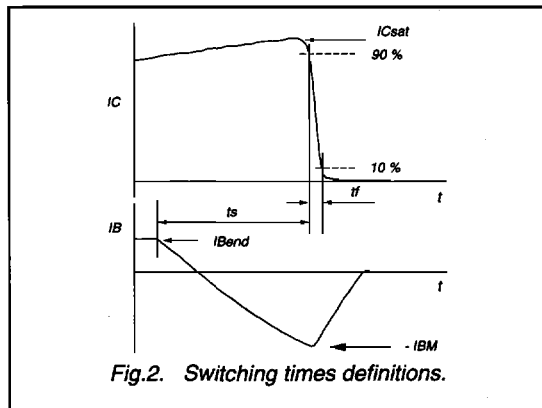
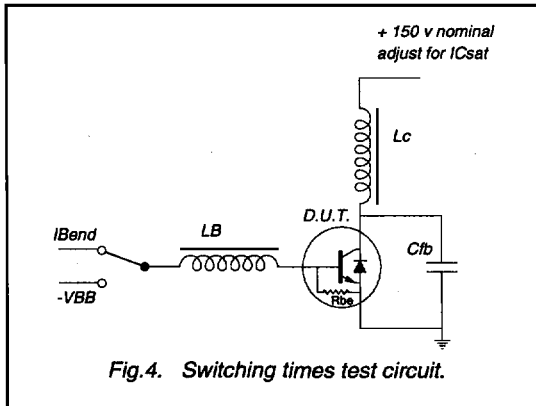
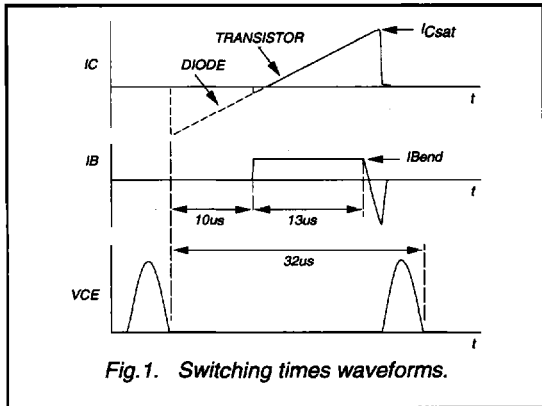
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SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
C_c	Collector capacitance	$I_E = 0\text{ A}; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	145	-	pF
	Switching times (32 kHz line deflection circuit)	$I_{Csat} = 8.0\text{ A}; L_C = 260\text{ }\mu\text{H}; C_{fb} = 13\text{ nF};$ $I_{B(end)} = 1.1\text{ A}; L_B = 2.5\text{ }\mu\text{H}; -V_{BB} = 4\text{ V};$ $(-di_B/dt = 1.6\text{ A}/\mu\text{s})$			
t_s	Turn-off storage time		3.0	4.0	μs
t_f	Turn-off fall time		0.2	0.35	μs
V_{fr}	Anti-parallel diode forward recovery voltage	$I_F = 8\text{ A}; di_F/dt = 50\text{ A}/\mu\text{s}$	16	-	V
t_{fr}	Anti-parallel diode forward recovery time	$V_F = 5\text{ V}$	410	-	ns

² Measured with half sine-wave voltage (curve tracer).

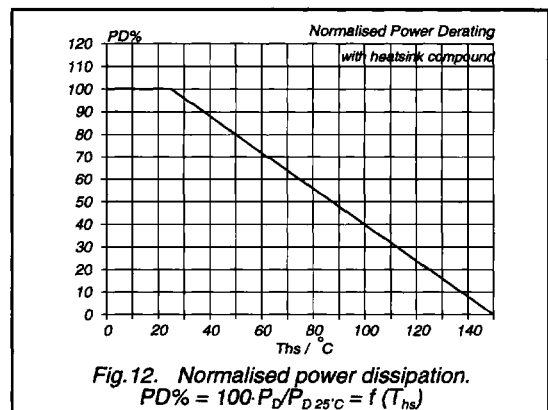
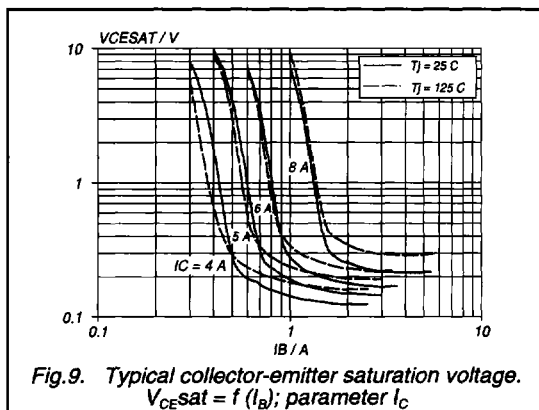
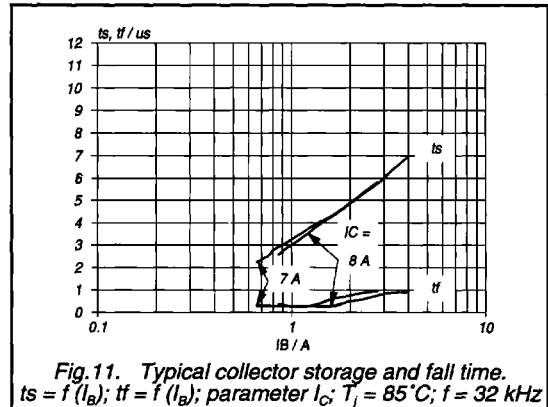
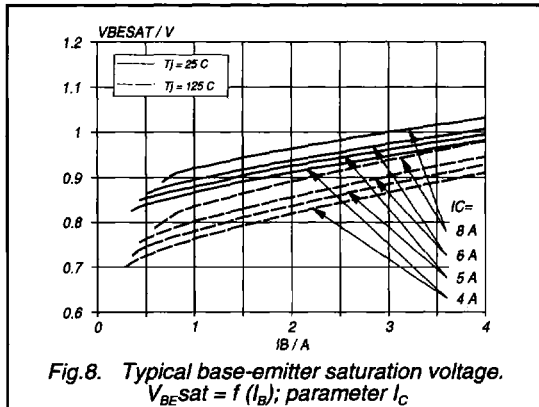
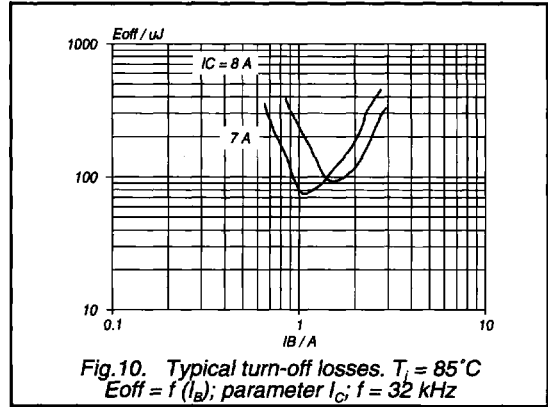
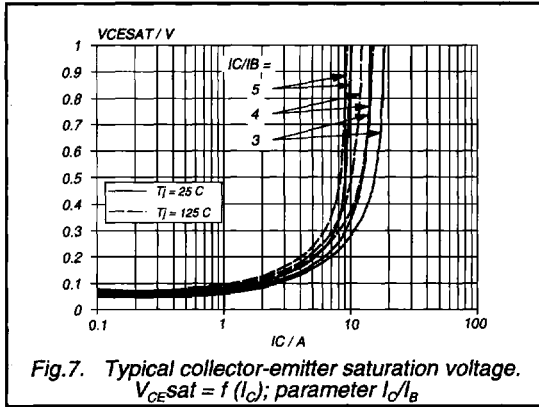
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