

Silicon Diffused Power Transistor

BU2527AX

GENERAL DESCRIPTION

New generation, high-voltage, high-speed switching npn transistor in a plastic full-pack envelope intended for use in horizontal deflection circuits of high resolution monitors. Features improved RBSOA performance and is suitable for operation up to 64 kHz.

QUICK REFERENCE DATA

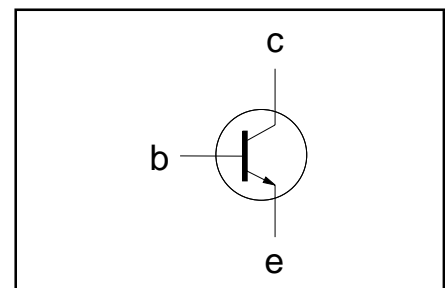
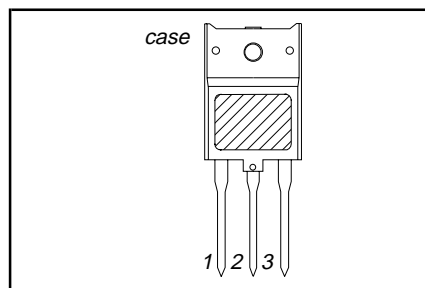
SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V_{CESM}	Collector-emitter voltage peak value	$V_{BE} = 0 \text{ V}$	-	1500	V
V_{CEO}	Collector-emitter voltage (open base)		-	800	V
I_C	Collector current (DC)		-	12	A
I_{CM}	Collector current peak value		-	30	A
P_{tot}	Total power dissipation	$T_{hs} \leq 25 \text{ }^\circ\text{C}$	-	45	W
V_{CEsat}	Collector-emitter saturation voltage	$I_C = 6.0 \text{ A}; I_B = 1.2 \text{ A}$	-	5.0	V
I_{Csat}	Collector saturation current		6.0	-	A
t_s	Storage time	$I_{Csat} = 6.0 \text{ A}; I_{B(end)} = 0.55 \text{ A}$	1.7	2.0	μs

PINNING - SOT399

PIN CONFIGURATION

SYMBOL

PIN	DESCRIPTION
1	base
2	collector
3	emitter
case	isolated



LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CESM}	Collector-emitter voltage peak value	$V_{BE} = 0 \text{ V}$	-	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		-	7	A
P_{tot}	Total power dissipation	$T_{hs} \leq 25 \text{ }^\circ\text{C}$	-	45	W
T_{stg}	Storage temperature		-55	150	$^\circ\text{C}$
T_j	Junction temperature		-	150	$^\circ\text{C}$

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CES}	Collector cut-off current ²	$V_{BE} = 0\text{ V}; V_{CE} = V_{CESMmax}$	-	-	0.25	mA
I_{CES}		$V_{BE} = 0\text{ V}; V_{CE} = V_{CESMmax}$ $T_j = 125\text{ °C}$	-	-	2.0	mA
I_{EBO}	Emitter cut-off current	$V_{EB} = 7.5\text{ V}; I_C = 0\text{ A}$	-	-	0.25	mA
BV_{EBO}	Emitter-base breakdown voltage	$I_B = 1\text{ mA}$	7.5	13.5	-	V
$V_{CEOsust}$	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	$I_C = 6.0\text{ A}; I_B = 1.2\text{ A}$	-	-	5.0	V
V_{BEsat}	Base-emitter saturation voltage	$I_C = 6.0\text{ A}; I_B = 1.2\text{ A}$	-	-	1.3	V
h_{FE}	DC current gain	$I_C = 1\text{ A}; V_{CE} = 5\text{ V}$	6	10	21	
h_{FE}		$I_C = 6\text{ A}; V_{CE} = 5\text{ V}$	5	7	9	

DYNAMIC CHARACTERISTICS $T_{hs} = 25\text{ °C}$ unless otherwise specified

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 (64 kHz line deflection circuit)	$I_{Csat} = 6.0\text{ A}; L_C = 170\text{ }\mu\text{H};$ $C_{fb} = 5.4\text{ nF}; I_{B(end)} = 0.55\text{ A};$ $L_B = 0.6\text{ }\mu\text{H}; -V_{BB} = 2\text{ V};$ $(-di_B/dt = 3.33\text{ A}/\mu\text{s})$			
t_s	Turn-off storage time		1.7	2.0	μs
t_f	Turn-off fall time		0.1	0.2	μs

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