

## Silicon Diffused Power Transistor

BU2725DX

## GENERAL DESCRIPTION

High voltage, high-speed switching npn transistor in a plastic full-pack envelope intended for use in horizontal deflection circuits of colour television receivers. Designed to withstand  $V_{CES}$  pulses up to 1700V.

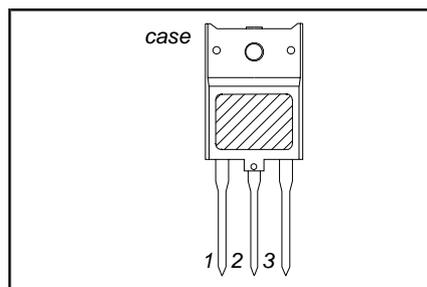
## QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
$V_{CESM}$	Collector-emitter voltage peak value	$V_{BE} = 0 V$	-	1700	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	$I_C = 7.0\text{ A}; I_B = 1.75\text{ A}$	-	1.0	V
$I_{Csat}$	Collector saturation current	$f = 16\text{ kHz}$	7.0	-	A
$t_s$	Storage time	$I_{Csat} = 7.0\text{ A}; f = 16\text{ kHz}$	5.8	6.5	$\mu\text{s}$

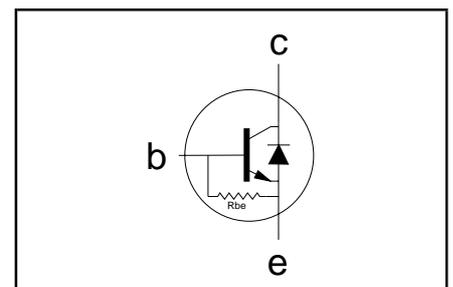
## PINNING - SOT399

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)

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{CESM}$	Collector-emitter voltage peak value	$V_{BE} = 0 V$	-	1700	V
$I_C$	Collector current (DC)		-	12	A
$I_{CM}$	Collector current peak value		-	30	A
$I_B$	Base current (DC)		-	12	A
$I_{BM}$	Base current peak value		-	20	A
$-I_{B(AV)}$	Reverse base current	average over any 20 ms period	-	200	mA
$-I_{BM}$	Reverse base current peak value <sup>1</sup>		-	9	A
$P_{tot}$	Total power dissipation	$T_{hs} \leq 25\text{ }^\circ\text{C}$	-	45	W
$T_{stg}$	Storage temperature		-65	150	$^\circ\text{C}$
$T_j$	Junction temperature		-	150	$^\circ\text{C}$

## ESD LIMITING VALUES

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_C$	Electrostatic discharge capacitor voltage	Human body model (250 pF, 1.5 k $\Omega$ )	-	10	kV

<sup>1</sup> Turn-off current.

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## 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

## ISOLATION LIMITING VALUE &amp; 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 <sup>2</sup>	$V_{BE} = 0\text{ V}; V_{CE} = V_{CESMmax}$	-	-	1.0	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	$V_{EB} = 7.5\text{ V}; I_C = 0\text{ A}$	-	110	-	mA
$B_{VEBO}$	Emitter-base breakdown voltage	$I_B = 1\text{ mA}$	7.5	13.5	-	V
$R_{EB}$	Base-emitter resistance	$V_{EB} = 7.5\text{ V}$	-	70	-	$\Omega$
$V_{CESat}$	Collector-emitter saturation voltage	$I_C = 7.0\text{ A}; I_B = 1.75\text{ A}$	-	-	1.0	V
$V_{BEsat}$	Base-emitter saturation voltage	$I_C = 7.0\text{ A}; I_B = 1.75\text{ A}$	0.78	0.86	0.95	V
$V_F$	Diode forward voltage	$I_F = 7\text{ A}$	-	1.4	2.2	V
$h_{FE}$	DC current gain	$I_C = 1\text{ A}; V_{CE} = 5\text{ V}$	-	19	-	
$h_{FE}$		$I_C = 7\text{ A}; V_{CE} = 1\text{ V}$	3.8	5.8	7.8	

## DYNAMIC CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
	Switching times (16 kHz line deflection circuit)	$I_{Csat} = 7.0\text{ A}; L_C = 650\text{ }\mu\text{H}; C_{fb} = 18\text{ nF};$ $V_{CC} = 162\text{ V}; I_{B(end)} = 1.5\text{ A}; L_B = 2\text{ }\mu\text{H};$ $-V_{BB} = 4\text{ V}$			
$t_s$	Turn-off storage time		5.8	6.5	$\mu\text{s}$
$t_f$	Turn-off fall time		0.6	0.8	$\mu\text{s}$

<sup>2</sup> Measured with half sine-wave voltage (curve tracer).