# **BU4525DW**

### **GENERAL DESCRIPTION**

Enhanced performance, new generation, high-voltage, high-speed switching npn transistor in a plastic envelope with an integrated damper diode intended for use in horizontal deflection circuits of colour television receivers and p.c monitors. Features exceptional tolerance to base drive and collector current load variations resulting in a very low worst case dissipation.

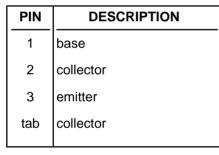
### QUICK REFERENCE DATA

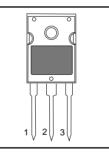
SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
V <sub>CESM</sub>	Collector-emitter voltage peak value	$V_{BE} = 0 V$	-	1500	V
V <sub>CEO</sub>	Collector-emitter voltage (open base)		-	800	V
Ic	Collector current (DC)		-	14	А
1 1	Collector current peak value		-	30	А
P <sub>tot</sub>	Total power dissipation	T <sub>bs</sub> ≤ 25 °C	-	125	W
P <sub>tot</sub> V <sub>CEsat</sub>	Collector-emitter saturation voltage	$T_{hs} \le 25 \degree C$ $I_{C} = 9.0 \text{ A}; I_{B} = 2.25 \text{ A}$	-	3.0	V
I <sub>Csat</sub>	Collector saturation current	f = 16  kHz	9.0	-	А
obut		f = 70 kHz	t.b.f	-	А
V <sub>F</sub>	Diode forward voltage	$I_{\rm F} = 9.0  {\rm A}$	-	2.2	V
t,	Fall time	l <sub>Csat</sub> = 9.0 A;f = 16 kHz f = 70 kHz	0.4	0.55	μs
		f = 70 kHz	t.b.f	t.b.f	μs

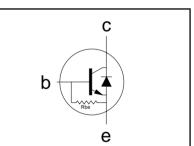
#### **PINNING - SOT429**

### PIN CONFIGURATION

#### SYMBOL







### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CESM</sub>	Collector-emitter voltage peak value	$V_{BE} = 0 V$	-	1500	V
V <sub>CEO</sub>	Collector-emitter voltage (open base)		-	800	V
	Collector current (DC)		-	14	Α
I <sub>CM</sub>	Collector current peak value		-	30	Α
I <sub>B</sub>	Base current (DC)		-	8	Α
I <sub>BM</sub>	Base current peak value		-	12	Α
-I <sub>BM</sub>	Reverse base current peak value <sup>1</sup>		-	7	A
	Total power dissipation	$T_{hs} \leq 25 \degree C$	-	125	W
T <sub>stg</sub>	Storage temperature	10	-55	150	°C
	Junction temperature		-	150	°C

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

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### THERMAL RESISTANCES

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
R <sub>th j-hs</sub>	Junction to heatsink	with heatsink compound	-	1	K/W
R <sub>th j-a</sub>	Junction to ambient	in free air	45	-	K/W

#### **STATIC CHARACTERISTICS**

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I <sub>CES</sub>	Collector cut-off current <sup>2</sup>	$V_{BE} = 0 V; V_{CE} = V_{CESMmax}$	-	-	1.0	mA
I <sub>CES</sub>		$V_{BE} = 0 V; V_{CE} = V_{CESMmax}$ $V_{BE} = 0 V; V_{CE} = V_{CESMmax};$	-	-	2.0	mA
BV <sub>EBO</sub>	Emitter-base breakdown voltage	T <sub>j</sub> = 125 °C I <sub>B</sub> = 600 mA	7.5	13.5	-	V
R <sub>be</sub>	Base-emitter resistance	V <sub>EB</sub> = 7.5 V	-	50	-	Ω
V <sub>CEOsust</sub>	Collector-emitter sustaining voltage	$I_{B} = 0 \text{ A}; I_{C} = 100 \text{ mA};$ L = 25 mH	800	-	-	V
V <sub>CEsat</sub>	Collector-emitter saturation voltage	$I_{c} = 9.0 \text{ A}; I_{B} = 2.25 \text{ A}$	-	-	3.0	V
V <sub>BEsat</sub>	Base-emitter saturation voltage	$I_{c} = 9.0 \text{ A}; I_{B} = 2.25 \text{ A}$	0.96	1.01	1.06	V
h <sub>FE</sub>	DC current gain	$I_{c}^{c} = 1.0 \text{ A}; V_{cE} = 5 \text{ V}$ $I_{c} = 9.0 \text{ A}; V_{cE} = 5 \text{ V}$	-	t.b.f	-	
h <sub>FE</sub> V <sub>F</sub>	Diode forward voltage	$I_{c} = 9.0 \text{ A}; V_{ce} = 5 \text{ V}$ $I_{f} = 9 \text{ A}$	4.2 -	5.8 -	7.6 2.2	V

### **DYNAMIC CHARACTERISTICS**

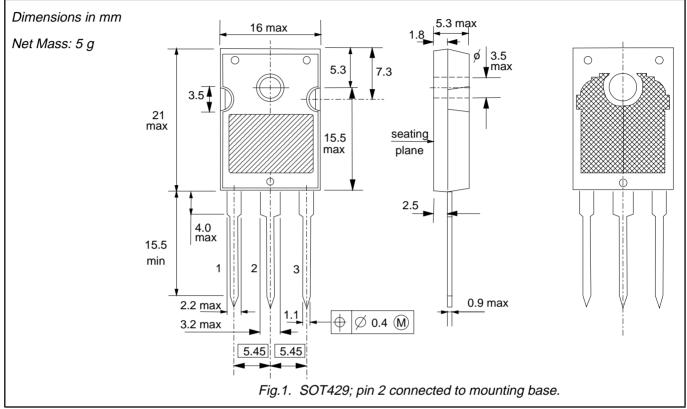
 $T_{hs}$  = 25 °C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	TYP.	MAX.	UNIT
C <sub>c</sub>	Collector capacitance	I <sub>E</sub> = 0 A; V <sub>CB</sub> = 10 V; f = 1 MHz	145	-	pF
	Switching times (16 kHz line deflection circuit)	$I_{Csat} = 9.0 \text{ A}; I_{B1} = 1.8 \text{ A}$ $(I_{B2} = -4.5 \text{ A})$			
t <sub>s</sub> t <sub>f</sub>	Turn-off storage time Turn-off fall time		3.7 0.4	4.5 0.55	μs μs
	Switching times (70 kHz line deflection circuit)	$I_{Csat} = t.b.f$			
t <sub>s</sub> t <sub>f</sub>	Turn-off storage time Turn-off fall time		t.b.f t.b.f	t,b,f t.b.f	μs μs

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

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### **MECHANICAL DATA**



#### Notes

Refer to mounting instructions for SOT429 envelope.
Epoxy meets UL94 V0 at 1/8".

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#### DEFINITIONS

Data sheet status			
Objective specification	This data sheet contains target or goal specifications for product development.		
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.		
Product specification	This data sheet contains final product specifications.		
Limiting values			
or more of the limiting val operation of the device at	in accordance with the Absolute Maximum Rating System (IEC 134). Stress above one lues may cause permanent damage to the device. These are stress ratings only and t these or at any other conditions above those given in the Characteristics sections of applied. Exposure to limiting values for extended periods may affect device reliability.		
	ation is given, it is advisory and does not form part of the specification.		
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### LIFE SUPPORT APPLICATIONS

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