

SILICON DARLINGTON POWER TRANSISTORS

NPN high-current switching Darlington transistor in ISOTOP package, intended for use in motor drives, converters, switch mode power supplies (SMPS) and uninterruptable power supplies (UPS).

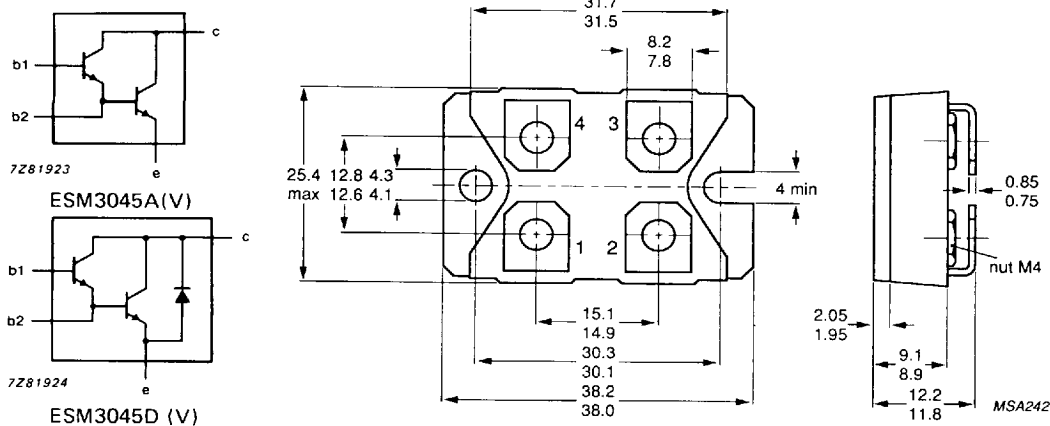
QUICK REFERENCE DATA

			ESM3045A(V)	3045D(V)
Collector-emitter voltage peak value; $V_{BE} = 0$ open base	V_{CESM}	max.	1000	600 V
	V_{CEO}	max.	450	450 V
	V_{CEsat}	max.	2.0	V
Collector-emitter saturation voltage	V_{CEsat}	max.	2.0	V
Collector current				
Total power dissipation up to $T_{mb} = 25^{\circ}\text{C}$				
Fall time inductive load				

MECHANICAL DATA

Dimensions in mm

Fig. 1 SOT227B.



ESM3045A(V)
ESM3045D(V)

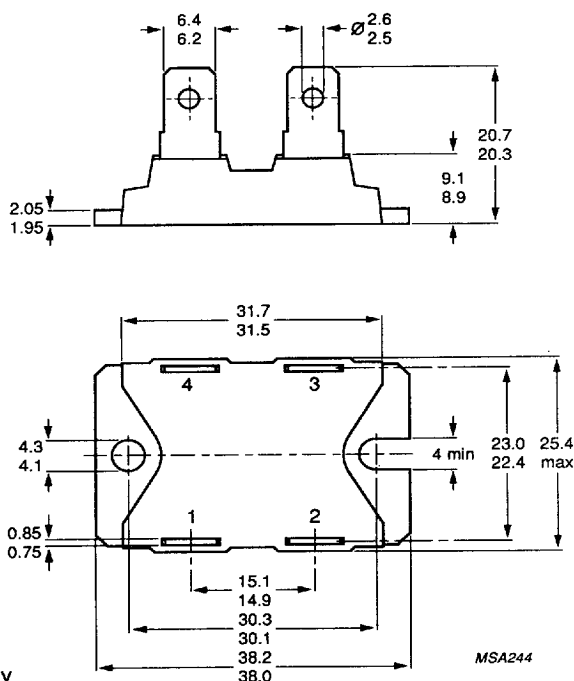


Fig. 2 SOT227A, with Faston terminals.

RATINGS

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

			ESM3045A(V)	3045D(V)
Collector-emitter voltage peak value; $V_{BE} = 0$ open base	V_{CESM}	max.	1000	600 V
	V_{CEO}	max.	450	V
Collector current saturation DC peak value	I_{Csat}	max.	15	A
	I_C	max.	24	A
	I_{CM}	max.	36	A
Base current DC peak value	I_B	max.	2.5	A
	I_{BM}	max.	5.0	A
Total power dissipation up to $T_{mb} = 25^\circ\text{C}$	P_{tot}	max.	125	W
Junction temperature	T_j	max.	150	$^\circ\text{C}$
Storage temperature range	T_{stg}		-40 to + 150	$^\circ\text{C}$

THERMAL RESISTANCE

			ESM3045A(V)	3045D(V)
From junction to mounting base transistor	$R_{th\ j-mb}$	=	1.0	K/W
From junction to mounting base diode	$R_{th\ j-mb}$	=	—	2.0 K/W

ISOLATION

Isolation voltage from all terminals to external heatsink (RMS value)	V_{isol}	max.	2500	V
Isolation capacitance from collector to external heatsink	C_{isol}	typ.	45	pF

CHARACTERISTICS

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

Collector cut-off current

$V_{CE} = V_{CESMmax}; V_{BE} = 0$	I_{CES}	max.	1.0	mA
$V_{CE} = V_{CESMmax}; V_{BE} = 0;$ $T_j = 100\ ^\circ\text{C}$	I_{CES}	max.	1.5	4.0 mA

Emitter cut-off current

$V_{EB} = 5\ \text{V}; I_C = 0$	I_{EBO}	max.	1.0	mA
---------------------------------	-----------	------	-----	----

Saturation voltages

$I_C = I_{Csat}; I_B = I_{Csat}/50; T_j = 125\ ^\circ\text{C}$	V_{CEsat}	max.	2.0	V
	V_{BEsat}	max.	2.5	V

Collector-emitter sustaining voltage

$I_C = 200\ \text{mA}; I_B = 0; L = 25\ \text{mH}$	$V_{CEOsust}$	min.	450	V
--	---------------	------	-----	---

Diode forward voltage drop

$I_F = 20\ \text{A}; T_j = 100\ ^\circ\text{C}$	V_F	max.	—	2.0 V
---	-------	------	---	-------

Switching times, inductive load

$I_C = I_{Csat}; I_{B\ on} = I_{Csat}/50;$ $V_{BE\ off} = -5\ \text{V}; T_j = 100\ ^\circ\text{C};$ $R_{BB} = 0.6\ \Omega; V_{CL} = 450\ \text{V}$ with anti-saturation network and speed-up diode	t_s	max.	4.0	4.0 μs
	t_f	max.	0.4	0.4 μs