



2SD870

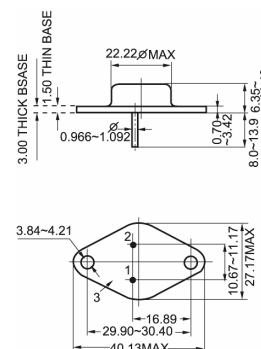
SILICON DIFFUSED POWER TRANSISTOR

GENERAL DESCRIPTION

High voltage, high-speed switching npn transistors in a metal envelope with integrated efficiency diode, primarily for use in horizontal deflection circuits of colour television receivers



TO-3



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V_{CESM}	Collector-emitter voltage peak value	$V_{BE} = 0V$	-	1500	V
V_{CEO}	Collector-emitter voltage (open base)		-	600	V
I_C	Collector current (DC)		-	5	A
I_{CM}	Collector current peak value		-		A
P_{tot}	Total power dissipation	$T_{mb} \leq 25^\circ C$	-	50	W
V_{CEsat}	Collector-emitter saturation voltage	$I_C = 4.0A; I_B = 0.8A$	-	5	V
I_{csat}	Collector saturation current	$f = 16KHz$			A
V_F	Diode forward voltage	$I_F = 4.0A$		2	V
t_f	Fall time	$I_{Csat} = 4.0A; f = 16KHz$		1.0	μs

LIMITING VALUES

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V_{CESM}	Collector-emitter voltage peak value	$V_{BE} = 0V$	-	1500	V
V_{CEO}	Collector-emitter voltage (open base)		-	600	V
I_C	Collector current (DC)		-	5	A
I_{CM}	Collector current peak value		-		A
I_B	Base current (DC)		-	1	A
I_{BM}	Base current peak value		-		A
P_{tot}	Total power dissipation	$T_{mb} \leq 25^\circ C$	-	50	W
T_{stn}	Storage temperature		-55	150	$^\circ C$
T_j	Junction temperature		-	150	$^\circ C$

ELECTRICAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
I_{CE}	Collector-emitter cut-off current	$V_{BE} = 0V; V_{CE} = V_{CESMmax}$	-	0.1	mA
I_{CES}		$V_{BE} = 0V; V_{CE} = V_{CESMmax}$	-	0.2	mA
$V_{CEOsust}$	Collector-emitter sustaining voltage	$T_j = 125^\circ C$ $I_B = 0A; I_C = 100mA$ $L = 25mH$	-		V
V_{CEsat}	Collector-emitter saturation voltages	$I_C = 4.0A; I_B = 0.8A$	-	5	V
V_{BESat}	Base-emitter saturation voltage	$I_C = 4.0A; I_B = 0.8A$	-	1.5	V
h_{FE}	DC current gain	$I_C = 1.0A; V_{CE} = 5V$	8	30	
V_F	Diode forward voltage	$I_F = 4.0A$		2	V
f_T	Transition frequency at $f = 1MHz$	$I_C = 0.1A; V_{CE} = 10V$	1	-	MHz
C_c	Collector capacitance at $f = 1MHz$	$V_{CB} = 10V$		165	pF
t_s	Switching times (16KHz line deflection circuit)	$I_C = 4A, I_{B1} = -I_{B2} = 0.8A, V_{CC} = 105V$		-	μs
t_f	Turn-off storage time Turn-off fall time	$I_C = 4A, I_{B1} = -I_{B2} = 0.8A, V_{CC} = 105V$		1.0	μs