HIGH DIODE

UMH11N

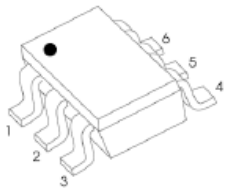
SOT-363 Plastic-Encapsulate Transistors

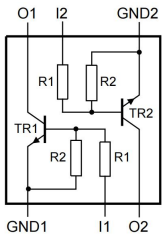
DUAL DIGITAL TRANSISTOR(NPN+NPN)

Features

- **100mA output current capability**
- **Built-in bias resistors**
- **Simplifies circuit design**
- **Reduces component count**
- **Reduces pick and place costs**

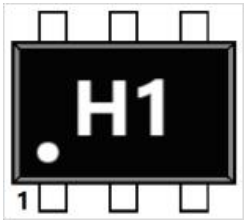
SOT-363





Mechanical Data

- **SOT-363 Small Outline Plastic Package**
- **Epoxy UL:94V-0**
- **Mounting Position:Any**
- **R1=10KΩ，R2=10KΩ**



Maximum Ratings & Thermal Characteristics (Ratings at 25℃ ambient temperature unless otherwise specified.)

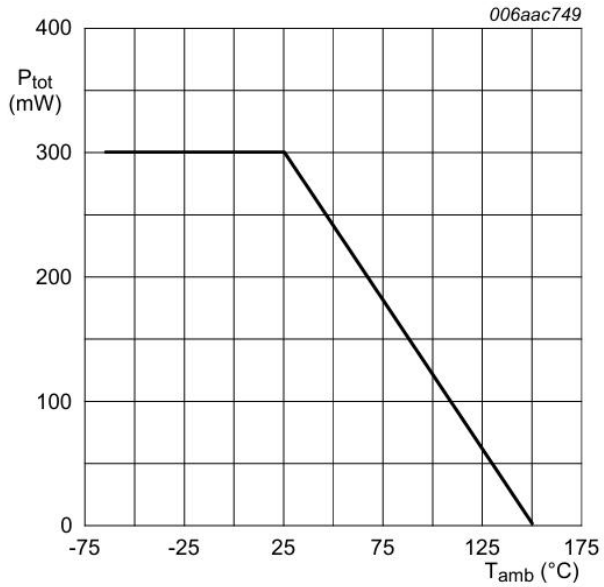
Parameters	Symbol	Value	Unit
Collector-Base Voltage	VCBO	50	V
Collector-Emitter Voltage	VCEO	50	V
Emitter -Base Voltage	VEBO	10	V
Input Voltage	VI	-10~40	V
Output Current	IO	100	mA
Total Power Dissipation @ Tamb≤25℃	Ptot*	200	mW
Thermal resistance form junction to ambient	Rth(j-a)*	625	℃/W
Total Power Dissipation @ Tamb≤25℃	Ptot*	300	mW
Thermal resistance form junction to ambient	Rth(j-a)*	417	℃/W
Junction Temperature	Tj	150	℃
Ambient Temperature	Tamb	-65~150	℃
Storage Temperature	Tstg	-65~150	℃

Typical Characteristics

Electrical Characteristics (Ratings at 25℃ ambient temperature unless otherwise specified).

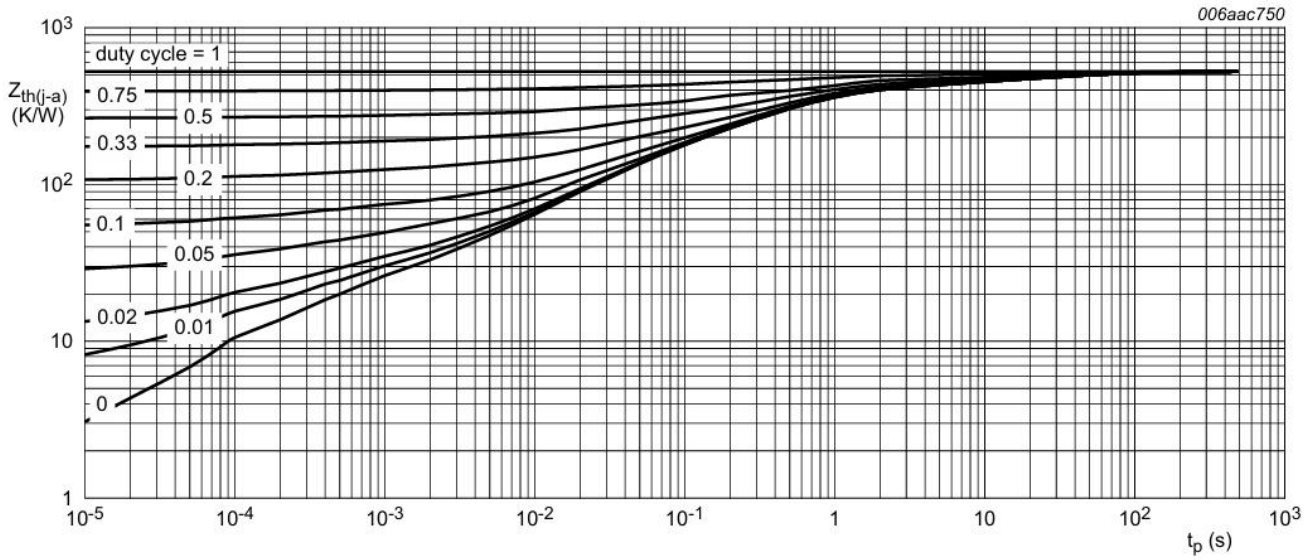
Parameter	Symbols	Test Condition	Limits			Unit
			Min	Typ	Max	
Collector-base breakdown voltage	V(BR)CBO	IC=100uA, IE=0	50			V
Collector-emitter breakdown voltage	V(BR)CEO	IC=2mA, IB=0	50			V
Collector-base cut-off current	ICBO	VCB=50V, IE=0			100	nA
Collector-emitter cut-off current	ICEO	VCE=30V, IB=0			1	uA
		VCE=30V, IB=0, Tj=150℃			5	uA
Emitter-base cut-off current	IEBO	VEB=5V, IC=0			400	uA
DC current gain	hFE	VCE=5V, IC=5mA	30			
Collector-emitter saturation voltage	VCE(sat)	IC=10mA, IB=0.5mA			150	mV
Off-state input voltage	VI(off)	VCE=5V, IC=100uA	0.8	1.1		V
On-state input voltage	VI(on)	VCE=0.3V, IC=10mA		1.8	2.5	V
Bias resistor 1 (input)	R1		7	10	13	KΩ
Bias resistor ratio	R2/R1		0.8	1	1.2	
Collector capacitance	Cc	VCB=10V, IE=0, ie=0, f=1MHz			2.5	pF
Transition frequency	Ft	VCE=5V, IC=10mA, f=100MHz		230		MHz

Typical characteristics



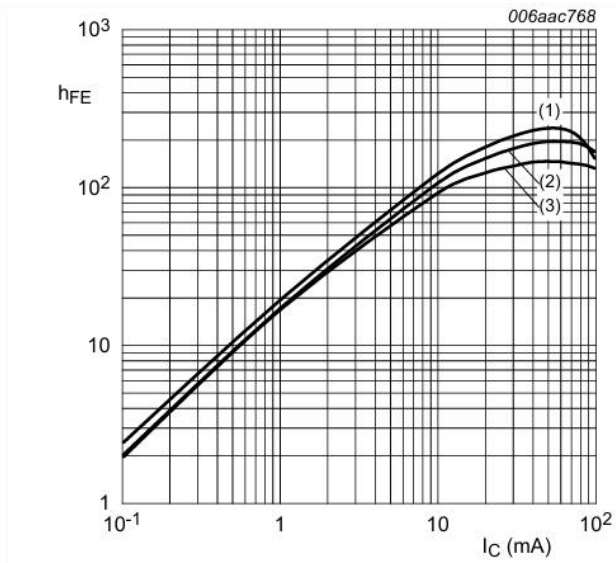
FR4 PCB, single-sided, 35 µm copper, tin-plated and standard footprint

Fig. 1. Per device: Power derating curve



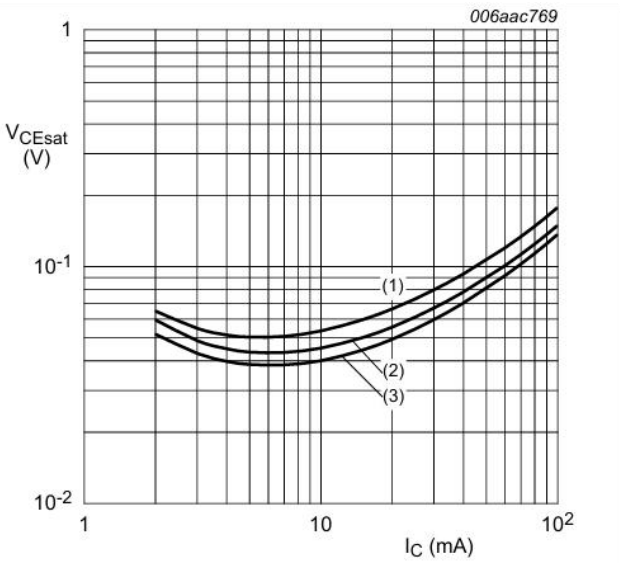
FR4 PCB, single-sided, 35 µm copper, tin-plated and standard footprint

Fig. 2. Per transistor: Transient thermal impedance from junction to ambient as a function of pulse duration; typical values



V_{CE} = 5 V
(1) T_{amb} = 100 °C
(2) T_{amb} = 25 °C
(3) T_{amb} = -40 °C

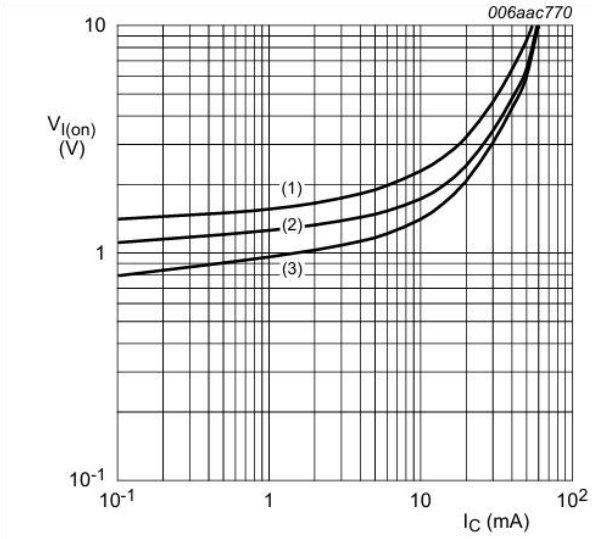
Fig. 3. DC current gain as a function of collector current; typical values



I_C/I_B = 20
(1) T_{amb} = 100 °C
(2) T_{amb} = 25 °C
(3) T_{amb} = -40 °C

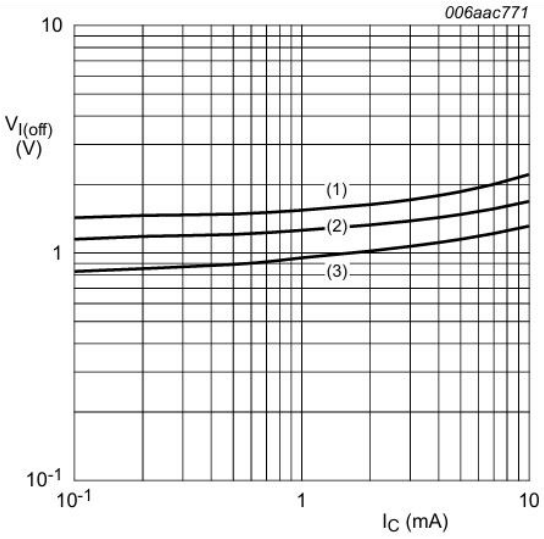
Fig. 4. Collector-emitter saturation voltage as a function of collector current; typical values

Typical Characteristics



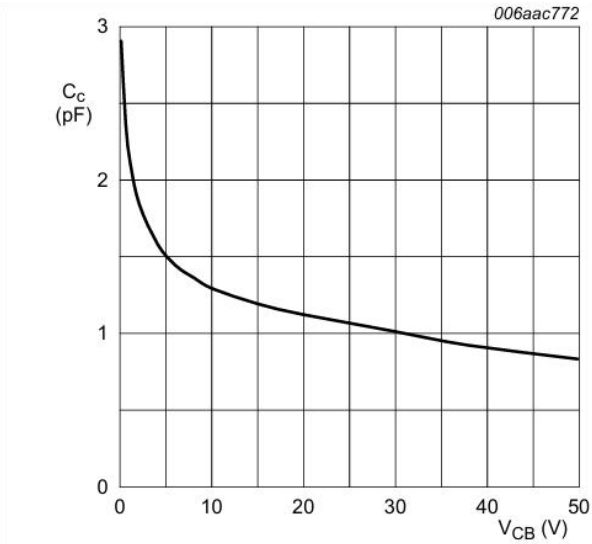
V_{CE} = 0.3 V
(1) T_{amb} = -40 °C
(2) T_{amb} = 25 °C
(3) T_{amb} = 100 °C

Fig. 5. On-state input voltage as a function of collector current; typical values



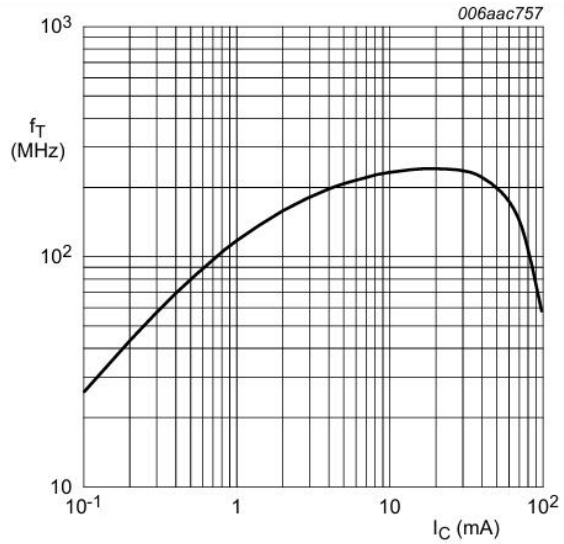
V_{CE} = 5 V
(1) T_{amb} = -40 °C
(2) T_{amb} = 25 °C
(3) T_{amb} = 100 °C

Fig. 6. Off-state input voltage as a function of collector current; typical values



f = 1 MHz
T_{amb} = 25 °C

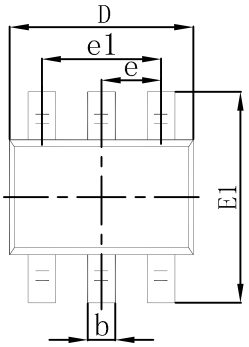
Fig. 7. Collector capacitance as a function of collector-base voltage; typical values

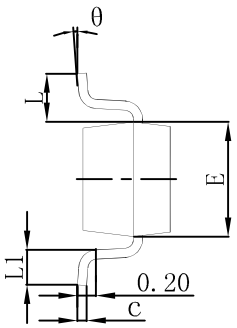


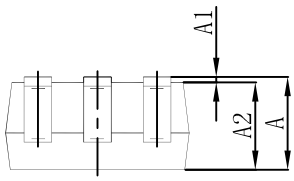
f = 100 MHz
T_{amb} = 25 °C
V_{CE} = 5 V

Fig. 8. Transition frequency as a function of collector current; typical values of built-in transistor

SOT-363 Package Outline Dimensions

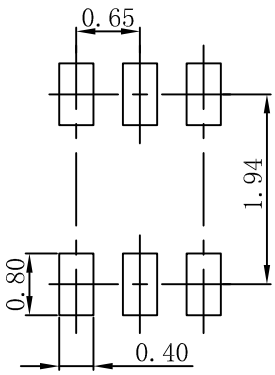






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.100	0.150	0.004	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.400	0.085	0.094
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-363 Suggested Pad Layout

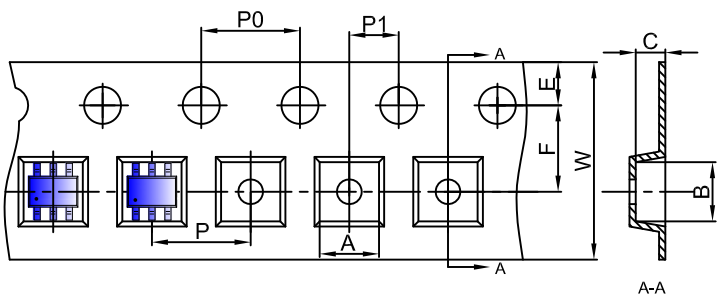


Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

NOTICE

JSHD reserve the right to make modifications,enhancements, improvements, corrections or other changes without further notice to any product herein .JSHD does not assume any liability arising out of the application or use of any product described herein.

SOT-363 Embossed Carrier Tape

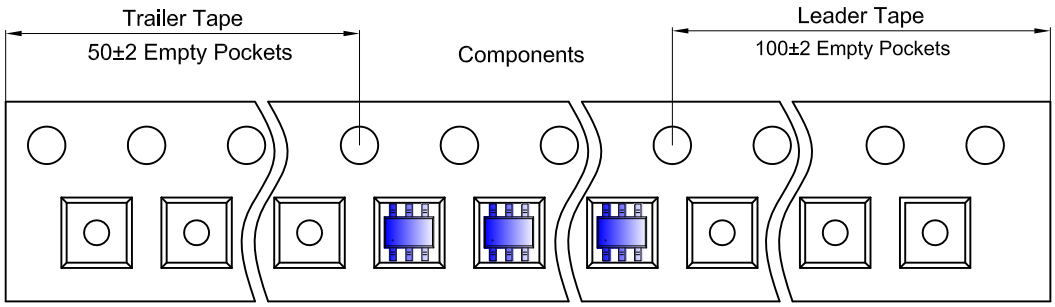


Packaging Description:

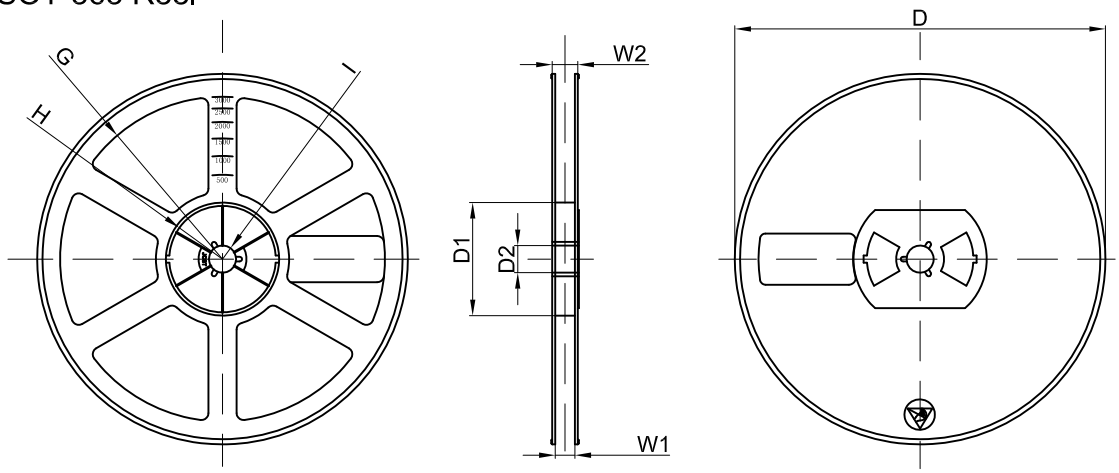
SOT-363 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-363	2.25	2.55	1.20	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-363 Tape Leader and Trailer



SOT-363 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	