

FEATURES

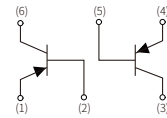
- | Epitaxial planar die construction
- | Ideal for low power amplification and switching
- | High Stability and High Reliability



SOT-363

MECHANICAL DATA

- | SOT-363 small outline plastic package
- | Epoxy UL: 94V-0
- | Mounting position: Any



Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-40	V
Collector-Emitter Voltage	V_{CEO}	-40	
Emitter-Base Voltage	V_{EBO}	-5	
Collector Current	I_C	-200	mA
Collector Power Dissipation	P_C	200	mW
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	625	$^{\circ}\text{C}/\text{W}$
Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}\text{C}$

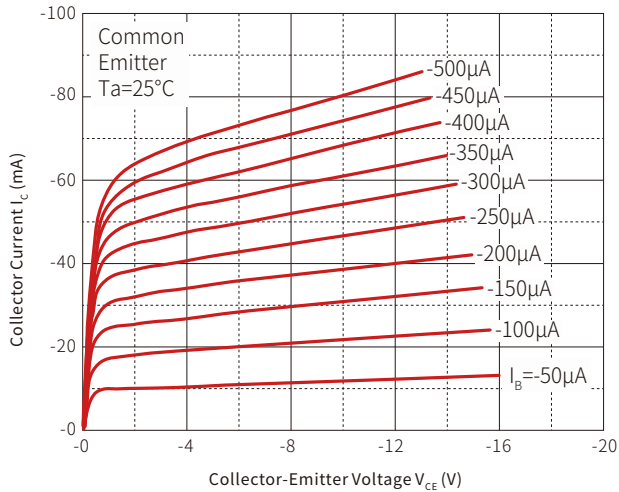
ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	V _{(BR)CBO}	I _C =-10μA, I _E =0	-40			V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C =-1mA, I _B =0	-40			
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E =-10μA, I _C =0	-5			
Collector cut-off current	I _{CEX}	V _{CE} =-30V, V _{EB(off)} =-3V			-50	nA
Emitter cut-off current	I _{EBO}	V _{EB} =-5V, I _C =0			-50	
DC current gain	h _{FE(1)}	V _{CE} =-1V, I _C =-0.1mA	60			
	h _{FE(2)}	V _{CE} =-1V, I _C =-1mA	80			
	h _{FE(3)}	V _{CE} =-1V, I _C =-10mA	100		300	
	h _{FE(4)}	V _{CE} =-1V, I _C =-50mA	60			
	h _{FE(5)}	V _{CE} =-1V, I _C =-100mA	30			
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =-10mA, I _B =-1mA			-0.25	V
	V _{CE(sat)}	I _C =-50mA, I _B =-5mA			-0.40	
Base-emitter saturation voltage	V _{BE(sat)}	I _C =-10mA, I _B =-1mA	-0.65		-0.85	
	V _{BE(sat)}	I _C =-50mA, I _B =-5mA			-0.95	
Transition frequency	f _T	V _{CE} =-20V, I _C =-10mA, f=100MHz	250			MHz
Collector output capacitance	C _{ob}	V _{CE} =-5V, I _E =0, f=1MHz			4.5	pF
Noise figure	N _F	V _{EB} =-5V, I _E =0, f=1MHz			4	dB
Delay time	t _d	V _{CC} =-3V, V _{BE(off)} =-0.5V I _C =-10mA, I _{B1} =-1mA			35	nS
Rise time	t _r				35	
Storage time	t _s	V _{CC} =-3V, I _C =-10mA, I _{B1} =I _{B2} =-1mA			225	
Fall time	t _f				75	

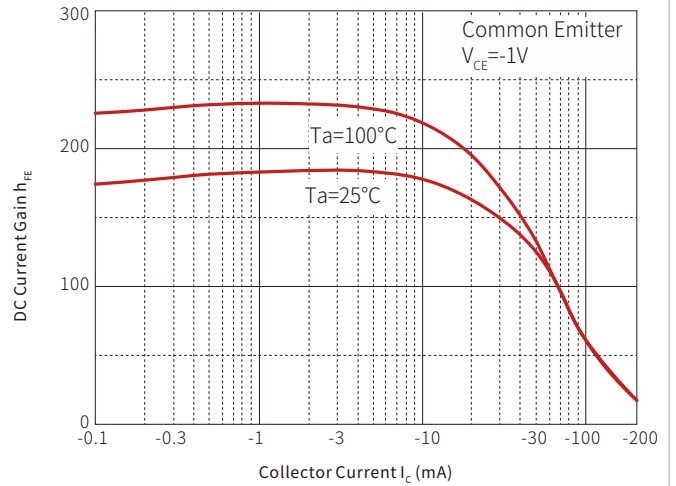
*Pulse test: pulse width ≤300μs, duty cycle ≤2.0%.

TYPICAL CHARACTERISTICS

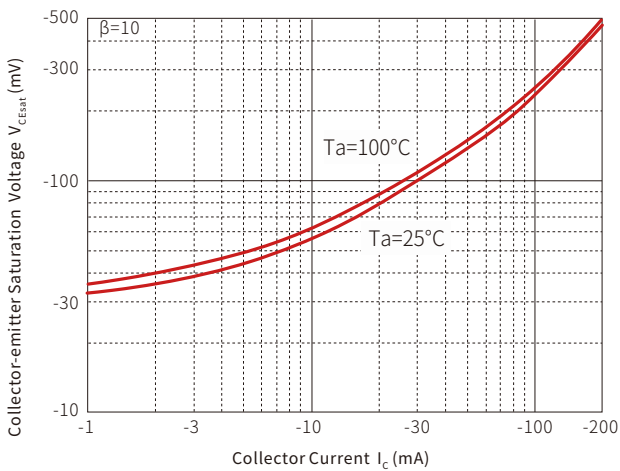
Static Characteristic



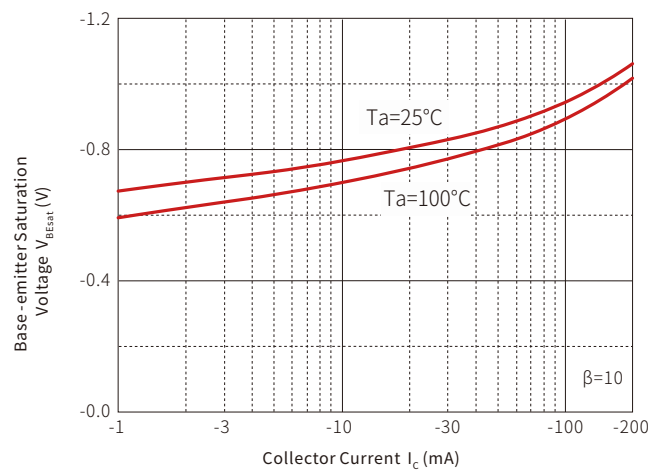
h_{FE} — I_C

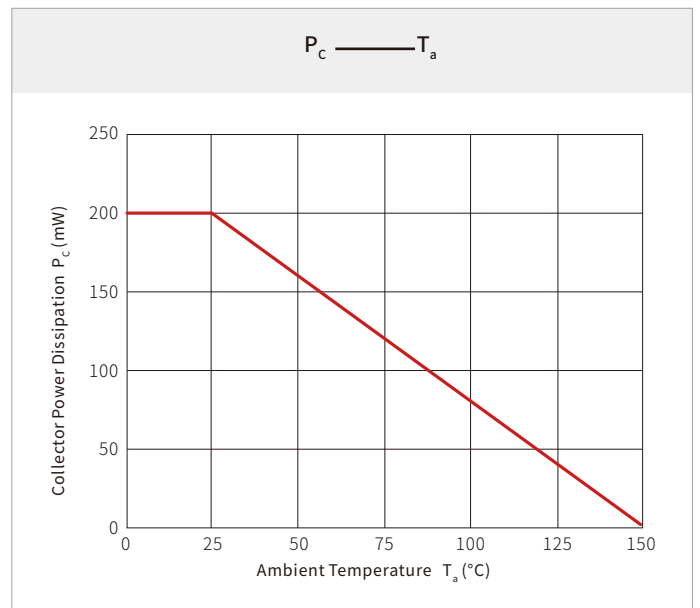
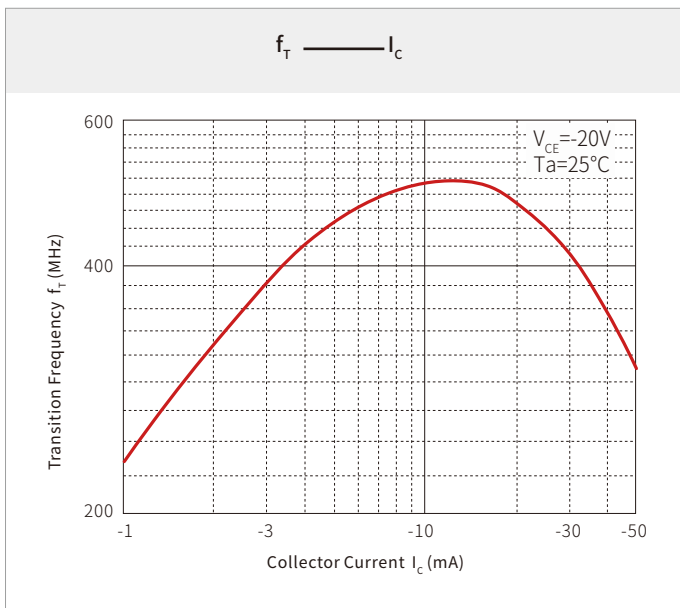
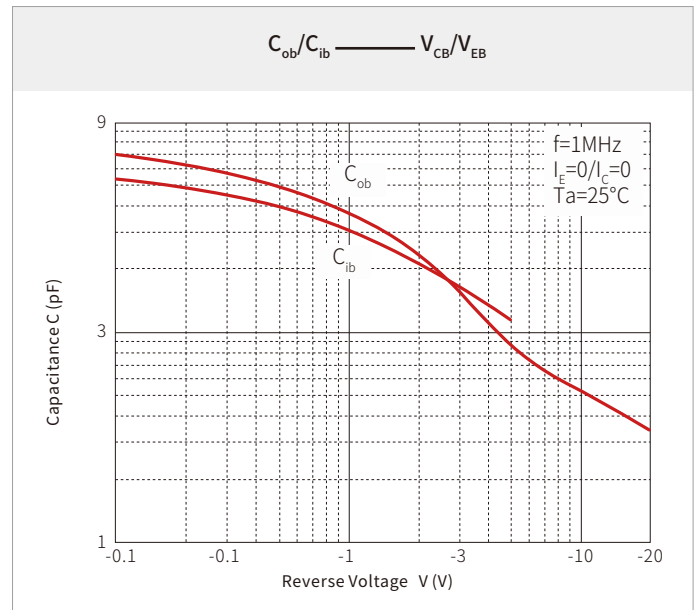
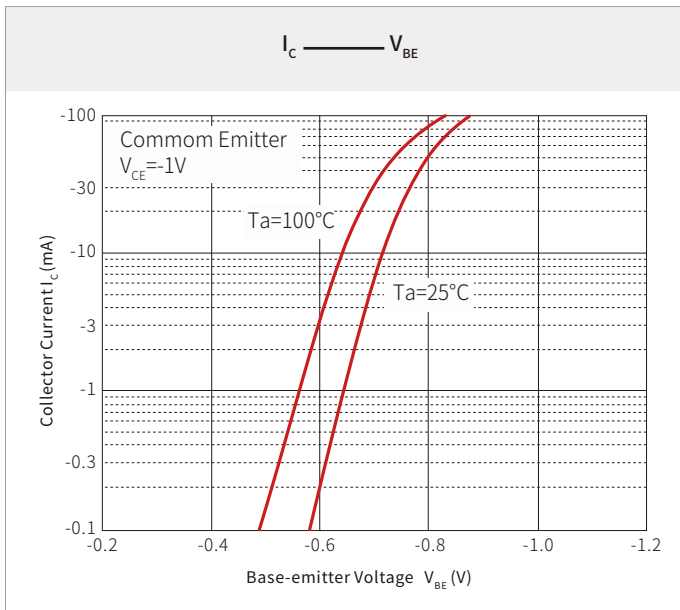


$V_{CE\text{ sat}}$ — I_C



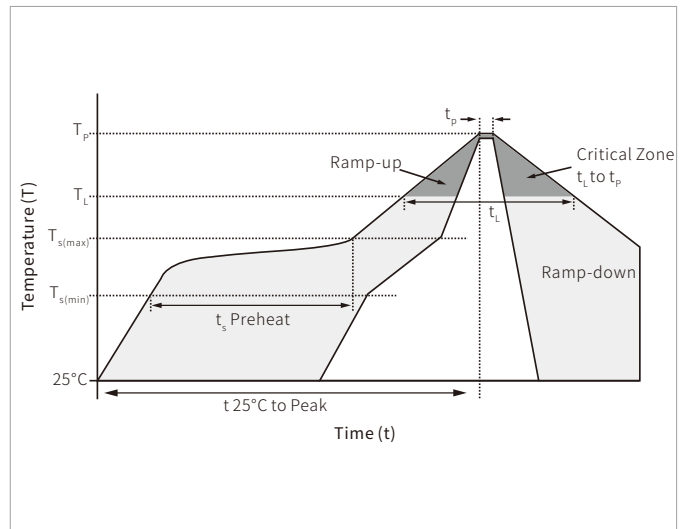
$V_{BE\text{ sat}}$ — I_C



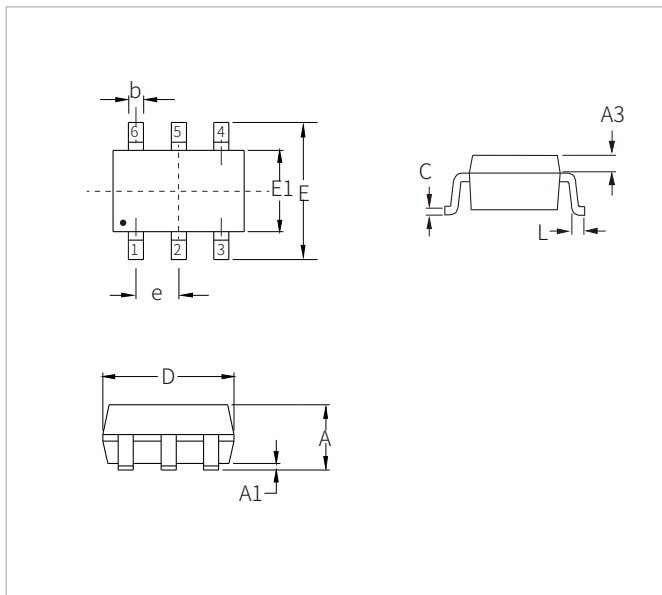


SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_p)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max.
Do not exceed		260°C

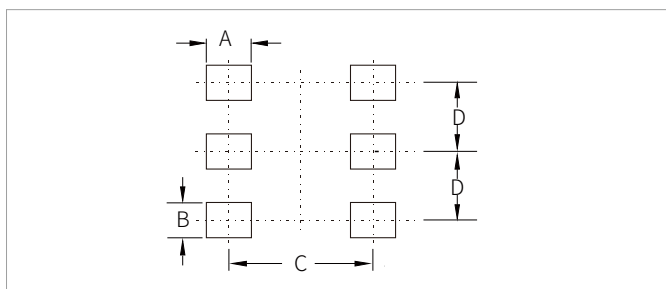


SOT-363 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.80	1.10	0.031	0.043
A1	0.00	0.10	0.000	0.004
A3	0.20REF		0.008REF	
D	1.80	2.20	0.070	0.086
E1	1.15	1.35	0.045	0.053
E	2.00	2.40	0.078	0.094
e	0.65BSC		0.026BSC	
b	0.10	0.40	0.004	0.016
L	0.10	0.50	0.004	0.020
C	0.10	0.25	0.004	0.010

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters	Inches
A	0.50	0.0197
B	0.40	0.0157
C	1.90	0.0748
D	0.65	0.0250

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
MMDT3906	SOT-363	3000PCS	7"

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By QR Code

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