

FEATURES

- Complementary to MMDT2222A
- Power Dissipation of 200mW
- High Stability and High Reliability



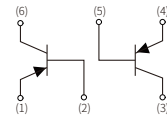
SOT-363

MECHANICAL DATA

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



Marking



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}	-60	V
Collector-Emitter Voltage	V_{CEO}	-60	
Emitter-Base Voltage	V_{EBO}	-5	
Collector Current	I_C	-600	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	$^{\circ}\text{C}$

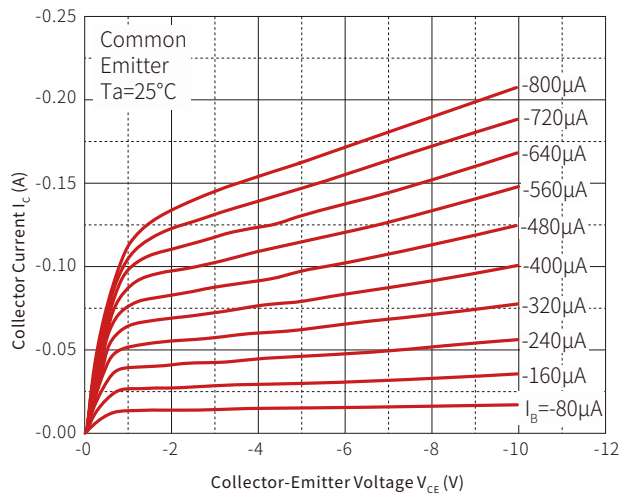
ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	V _{(BR)CBO}	I _C =-10μA, I _E =0	-60			V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C =-10mA, I _B =0	-60			
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E =-10μA, I _C =0	-5			
Collector cut-off current	I _{CBO}	V _{CB} =-50V, I _E =0			-10	nA
Collector cut-off current	I _{CEX}	V _{CE} =-30V, V _{EB(off)} =-0.5V			-50	
Emitter cut-off current	I _{EBO}	V _{EB} =-3V, I _C =0			-10	
DC current gain	h _{FE(1)}	V _{CE} =-10V, I _C =-0.1mA	75			
	h _{FE(2)}	V _{CE} =-10V, I _C =-1mA	100			
	h _{FE(3)}	V _{CE} =-10V, I _C =-10mA	100			
	h _{FE(4)}	V _{CE} =-10V, I _C =-150mA	100		300	
	h _{FE(5)}	V _{CE} =-10V, I _C =-500mA	50			
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =-150mA, I _B =-15mA			-0.4	V
	V _{CE(sat)}	I _C =-500mA, I _B =-50mA			-1.6	
Base-emitter saturation voltage	V _{BE(sat)}	I _C =-150mA, I _B =-15mA			-1.30	
	V _{BE(sat)}	I _C =-500mA, I _B =-50mA			-2.60	
Transition frequency	f _T	V _{CE} =-20V, I _C =-50mA, f=100MHz	200			MHz
Collector output capacitance	C _{ob}	V _{CE} =-10V, I _E =0, f=1MHz			8	pF
Input capacitance	C _{ib}	V _{EB} =-2V, I _C =0, f=0.1MHz			30	pF
Delay time	td	V _{CC} =-30V, V _{BE(off)} =-1.5V I _C =-150mA, I _{B1} =-15mA			10	nS
Rise time	tr				40	
Storage time	ts	V _{CC} =-6V, I _C =-150mA, I _{B1} =I _{B2} =-15mA			225	
Fall time	tf				60	

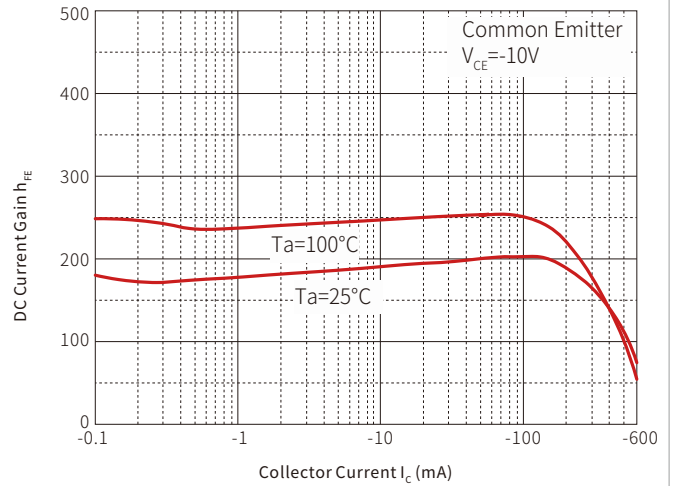
*Pulse test: pulse width ≤300μs, duty cycle ≤ 2.0%.

TYPICAL CHARACTERISTICS

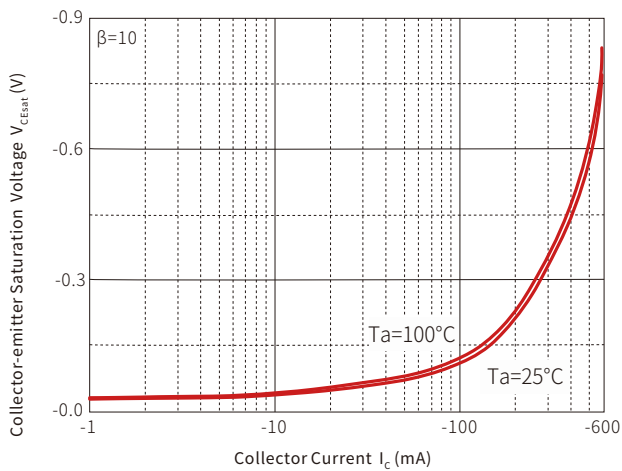
Static Characteristic



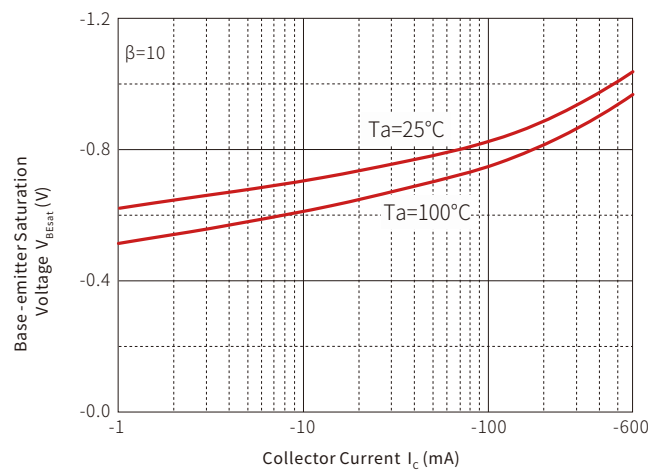
h_{FE} — I_C

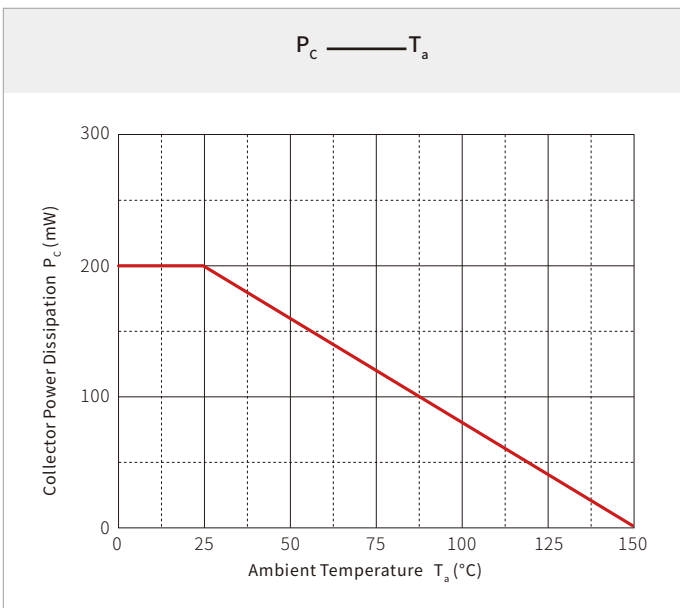
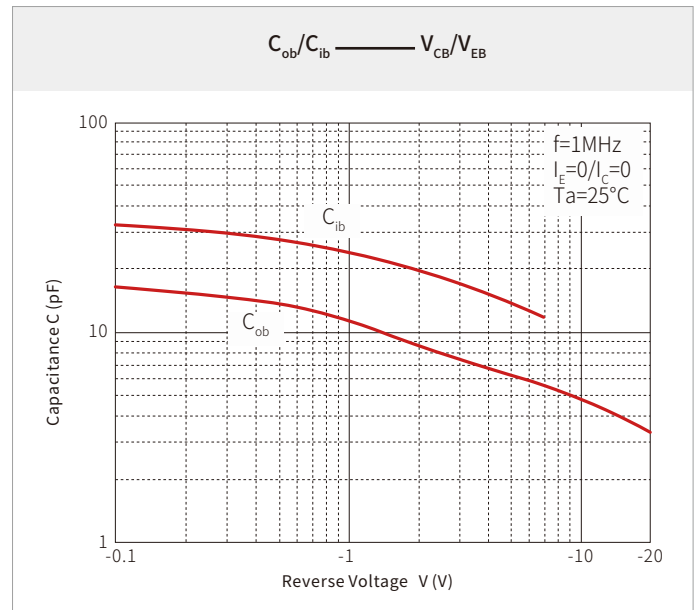
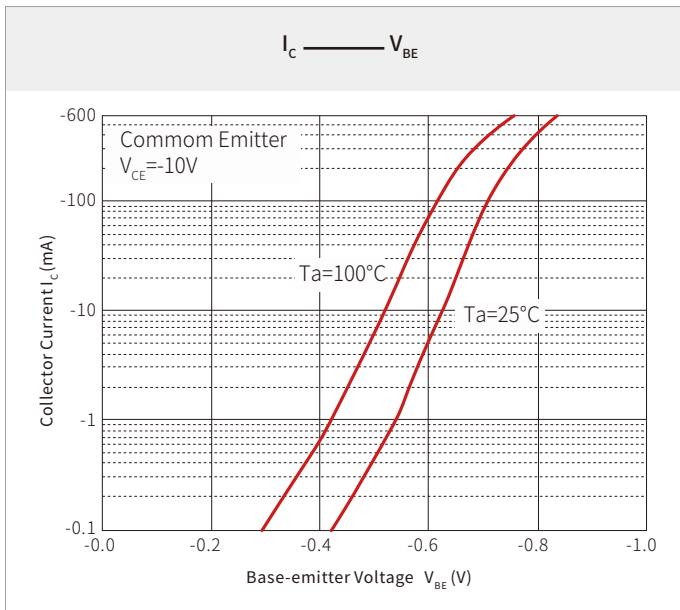


$V_{CE\text{ sat}}$ — I_C



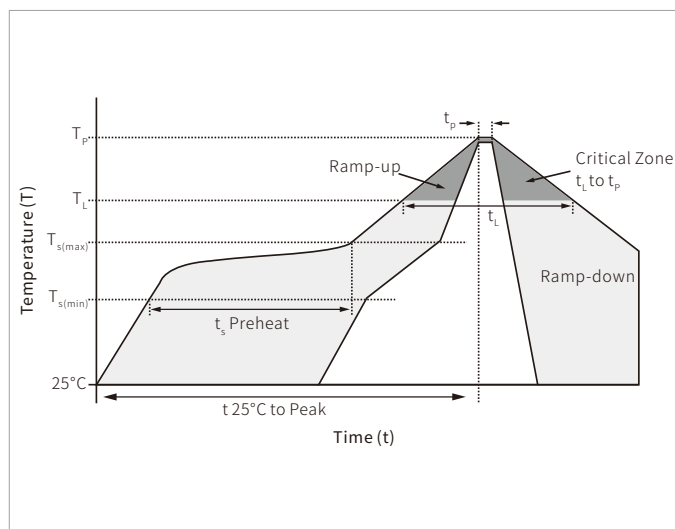
$V_{BE\text{ sat}}$ — I_C



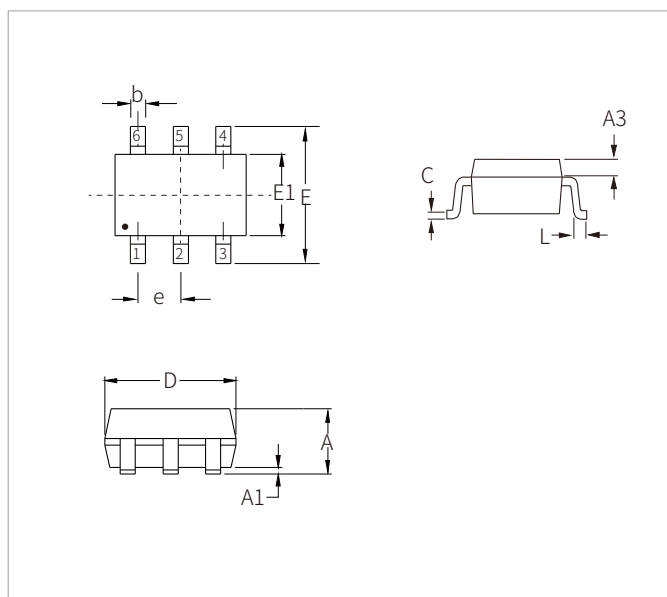


SOLDERING PARAMETERS

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

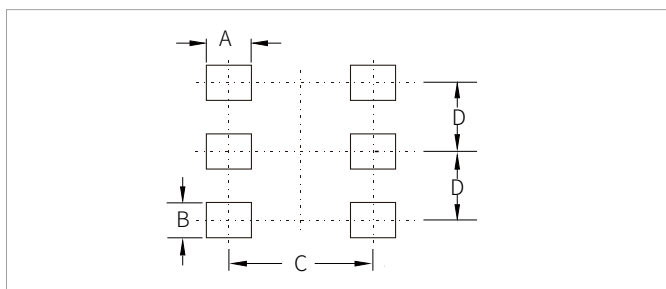


SOT-363 PACKAGE INFORMATION



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
MMDT2907A	SOT-363	3000PCS	7"

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