MMDT2222A

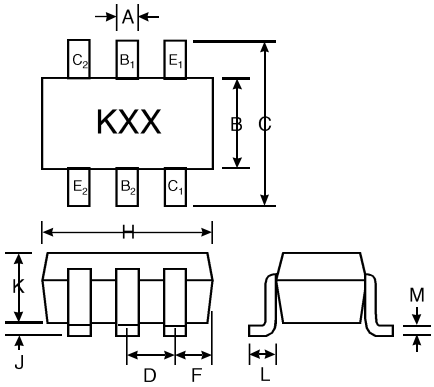
DUAL NPN SMALL SIGNAL SURFACE MOUNT TRANSISTOR

Features

- Epitaxial Planar Die Construction
- Complementary PNP Type Available (MMDT2907A)
- Ultra-Small Surface Mount Package

Mechanical Data

- Case: SOT-363, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking: K1P
- Weight: 0.006 grams (approx.)



SOT-363		
Dim	Min	Max
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
F	0.30	0.40
H	1.80	2.20
J		0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.25
All Dimensions in mm		

Maximum Ratings

@ T_A = 25 C unless otherwise specified

Characteristic	Symbol	MMDT2222A	Unit
Collector-Base Voltage	V_{CBO}	75	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	6.0	V
Collector Current - Continuous (Note 1)	I_C	600	mA
Power Dissipation (Note 1)	P_d	200	mW
Thermal Resistance, Junction to Ambient (Note 1)	R_{JA}	625	K/W
Operating and Storage and Temperature Range	T_j, T_{STG}	-55 to +150	C

Note: 1. Valid provided that terminals are kept at ambient temperature.
2. Pulse test: Pulse width 300 s, duty cycle 2%.

Electrical Characteristics @ T_A = 25 C unless otherwise specified

Characteristic	Symbol	Min	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 2)					
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	75		V	I_C = 10 A, I_E = 0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	40		V	I_C = 10mA, I_B = 0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6.0		V	I_E = 10 A, I_C = 0
Collector Cutoff Current	I_{CBO}		10	nA A	V_{CB} = 60V, I_E = 0 V_{CB} = 60V, I_E = 0, T_A = 150 C
Collector Cutoff Current	I_{CEX}		10	nA	V_{CE} = 60V, $V_{EB(OFF)}$ = 3.0V
Emitter Cutoff Current	I_{EBO}		10	nA	V_{EB} = 3.0V, I_C = 0
Base Cutoff Current	I_{BL}		20	nA	V_{CE} = 60V, $V_{EB(OFF)}$ = 3.0V
ON CHARACTERISTICS (Note 2)					
DC Current Gain	h_{FE}	35 50 75 100 40 50 35	300		I_C = 100 A, V_{CE} = 10V I_C = 1.0mA, V_{CE} = 10V I_C = 10mA, V_{CE} = 10V I_C = 150mA, V_{CE} = 10V I_C = 500mA, V_{CE} = 10V I_C = 10mA, V_{CE} = 10V, T_A = -55 C I_C = 150mA, V_{CE} = 1.0V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$		0.3 1.0	V	I_C = 150mA, I_B = 15mA I_C = 500mA, I_B = 50mA
Base- Emitter Saturation Voltage	$V_{BE(SAT)}$	0.6	1.2 2.0	V	I_C = 150mA, I_B = 15mA I_C = 500mA, I_B = 50mA
SMALL SIGNAL CHARACTERISTICS					
Output Capacitance	C_{obo}		8	pF	V_{CB} = 10V, f = 1.0MHz, I_E = 0
Input Capacitance	C_{ibo}	—	25	pF	V_{EB} = 0.5V, f = 1.0MHz, I_C = 0
Current Gain-Bandwidth Product	f_T	300		MHz	V_{CE} = 20V, I_C = 20mA, f = 100MHz
Noise Figure	NF		4.0	dB	V_{CE} = 10V, I_C = 100 A, R_S = 1.0k f = 1.0kHz
SWITCHING CHARACTERISTICS					
Delay Time	t_d		10	ns	V_{CC} = 30V, I_C = 150mA, $V_{BE(off)}$ = - 0.5V, I_{B1} = 15mA
Rise Time	t_r		25	ns	
Storage Time	t_s		225	ns	V_{CC} = 30V, I_C = 150mA, I_{B1} = I_{B2} = 15mA
Fall Time	t_f		60	ns	

Note: 1. Valid provided that terminals are kept at ambient temperature.
2. Pulse test: Pulse width 300 s, duty cycle 2%.