

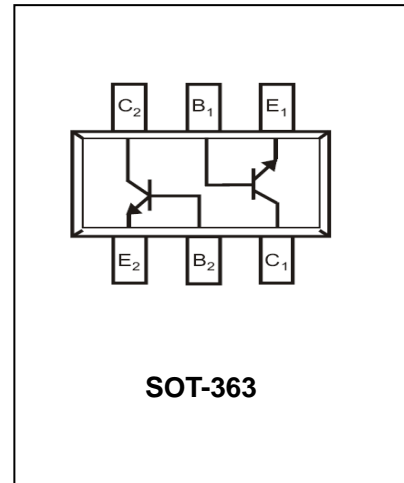
## Dual NPN Small Signal Surface Mount Transistor **MMDT2222A**

### FEATURES

- Epitaxial planar die construction.
- Complementary PNP type available MMDT2907A.
- Ultra-small surface mount package.



Lead-free



### APPLICATIONS

- Dual NPN small signal surface mount transistor

### ORDERING INFORMATION

Type No.	Marking	Package Code
MMDT2222A	K1P	SOT-363

### MAXIMUM RATING @ Ta=25°C unless otherwise specified

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	75	V
V <sub>CEO</sub>	Collector-Emitter Voltage	40	V
V <sub>EBO</sub>	Emitter-Base Voltage	6	V
I <sub>C</sub>	Collector Current -Continuous	600	mA
P <sub>D</sub>	Power Dissipation	200	mW
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient	625	°C/W
T <sub>j</sub> , T <sub>stg</sub>	Junction and Storage Temperature	-55to+150	°C

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### ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

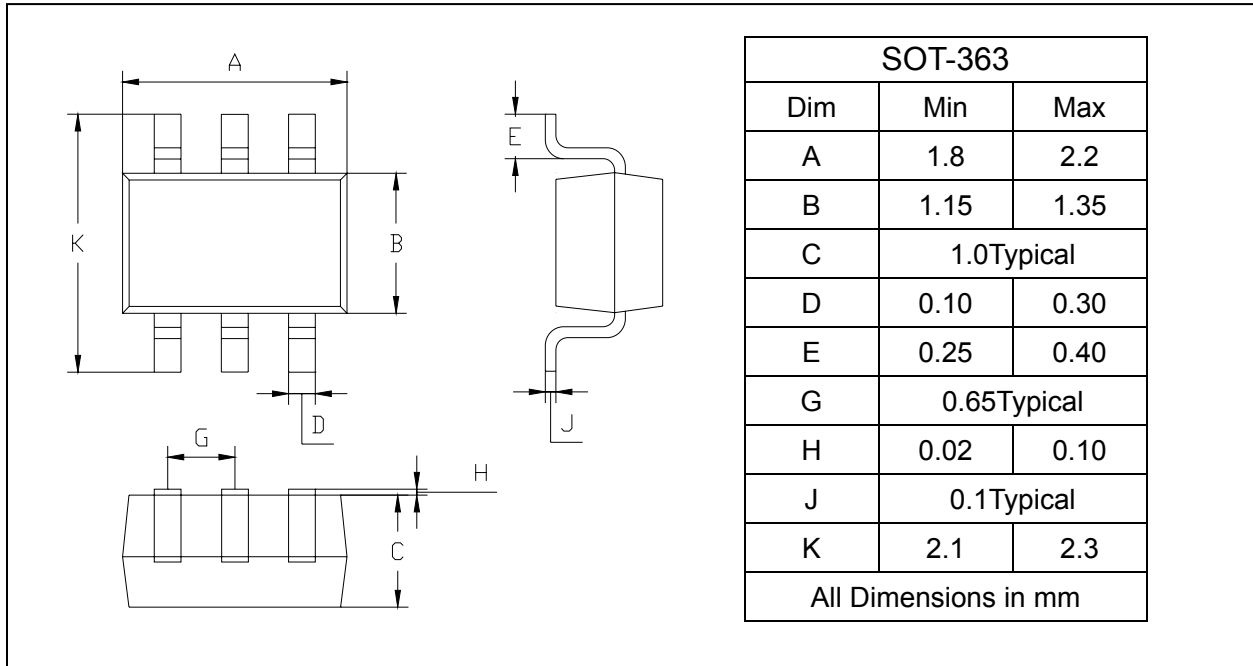
Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=10\mu A$ $I_E=0$	75	-	V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10mA$ $I_B=0$	40	-	V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=10\mu A$ $I_C=0$	6	-	V
Collector cut-off current	$I_{CBO}$	$V_{CB}=60V$ $I_E=0$ $V_{CB}=60V$ $I_E=0$ $T_A=150^\circ C$	-	10	nA $\mu A$
Collector cut-off current	$I_{CEX}$	$V_{CE}=60V$ $I_{EB(off)}=3.0V$	-	10	nA
Emitter cut-off current	$I_{EBO}$	$V_{EB}=3V$ $I_C=0$	-	10	nA
Base Cut-off Current	$I_{BL}$	$V_{CE}=60V$ $I_{EB(off)}=3.0V$	-	20	nA
DC current gain	$h_{FE}$	$V_{CE}=10V$ $I_C=100\mu A$	35	-	-
		$V_{CE}=10V$ $I_C=1.0mA$	50	-	
		$V_{CE}=10V$ $I_C=10mA$	75	-	
		$V_{CE}=10V$ $I_C=150mA$	100	300	
		$V_{CE}=10V$ $I_C=500mA$	40	-	
		$V_{CE}=10V$ $I_C=10mA$ $T_A=-55^\circ C$	50	-	
		$V_{CE}=1.0V$ $I_C=150mA$	35	-	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=150mA$ $I_B=15mA$ $I_C=500mA$ $I_B=50mA$	-	0.3 1.0	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=150mA$ $I_B=15mA$ $I_C=500mA$ $I_B=50mA$	0.6 -	1.2 2.0	V
Transition frequency	$f_T$	$V_{CE}=20V$ $I_C=20mA$ $f=100MHz$	300		MHz
Output Capacitance	$C_{obo}$	$V_{CB}=10V$ , $f=1.0MHz$ , $I_E=0$	-	8	pF
Input Capacitance	$C_{ibo}$	$V_{EB}=0.5V$ , $f=1.0MHz$ , $I_C=0$	-	25	pF
Noise Figure	NF	$V_{CE}=10V$ , $f=1.0kHz$ , $I_C=100\mu A$ $R_S=1.0k\Omega$	-	4.0	dB
Delay time	$t_d$	$V_{CC}=30V$ , $V_{BE(off)}=-0.5V$		10	ns
Rise time	$t_r$	$I_C=150mA$ , $I_{B1}=15mA$		25	ns
Storage time	$t_s$	$V_{CC}=30V$ , $I_C=150mA$		225	ns
Fall time	$t_f$	$I_{B1}=-I_{B2}=15mA$		60	ns

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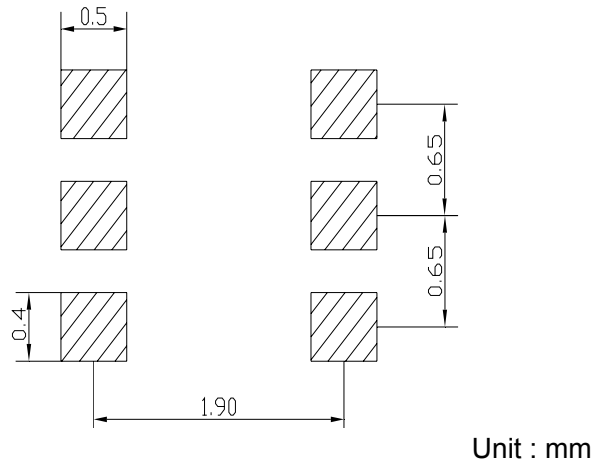
### PACKAGE OUTLINE

Plastic surface mounted package

SOT-363



### SOLDERING FOOTPRINT



### PACKAGE INFORMATION

Device	Package	Shipping
MMDT2222A	SOT-363	3000/Tape&Reel