

MMDT2222A

Rev.C Oct.-2021

VRW0696 MMDT2222A QSOP 6-Pin 1.5mm Pitch Silicon NPN Transistor in a SOT-363 Plastic Package.

Collector current up to 600 mA.

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	75	V
Collector to Emitter Voltage	V_{CEO}	40	V
Emitter to Base Voltage	V_{EBO}	6.0	V
Collector Current	I_C	600	mA
Total Package Dissipation ^{Note1}	P_D	150	mW
Junction Temperature	T_J	-55 +150	
Storage Temperature Range	T_{stg}	-55 +150	

Note1 χ Device mounted on FR4 glass epoxy printed circuit board using the minimum recommended footprint.

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Base Breakdown Voltage	V_{CBO}	$I_C = 10\mu A$ $I_E = 0$	75			V
Collector Emitter Breakdown Voltage	V_{CEO}	$I_C = 10mA$ $I_B = 0$	40			V
Emitter Base Breakdown Voltage	V_{EBO}					

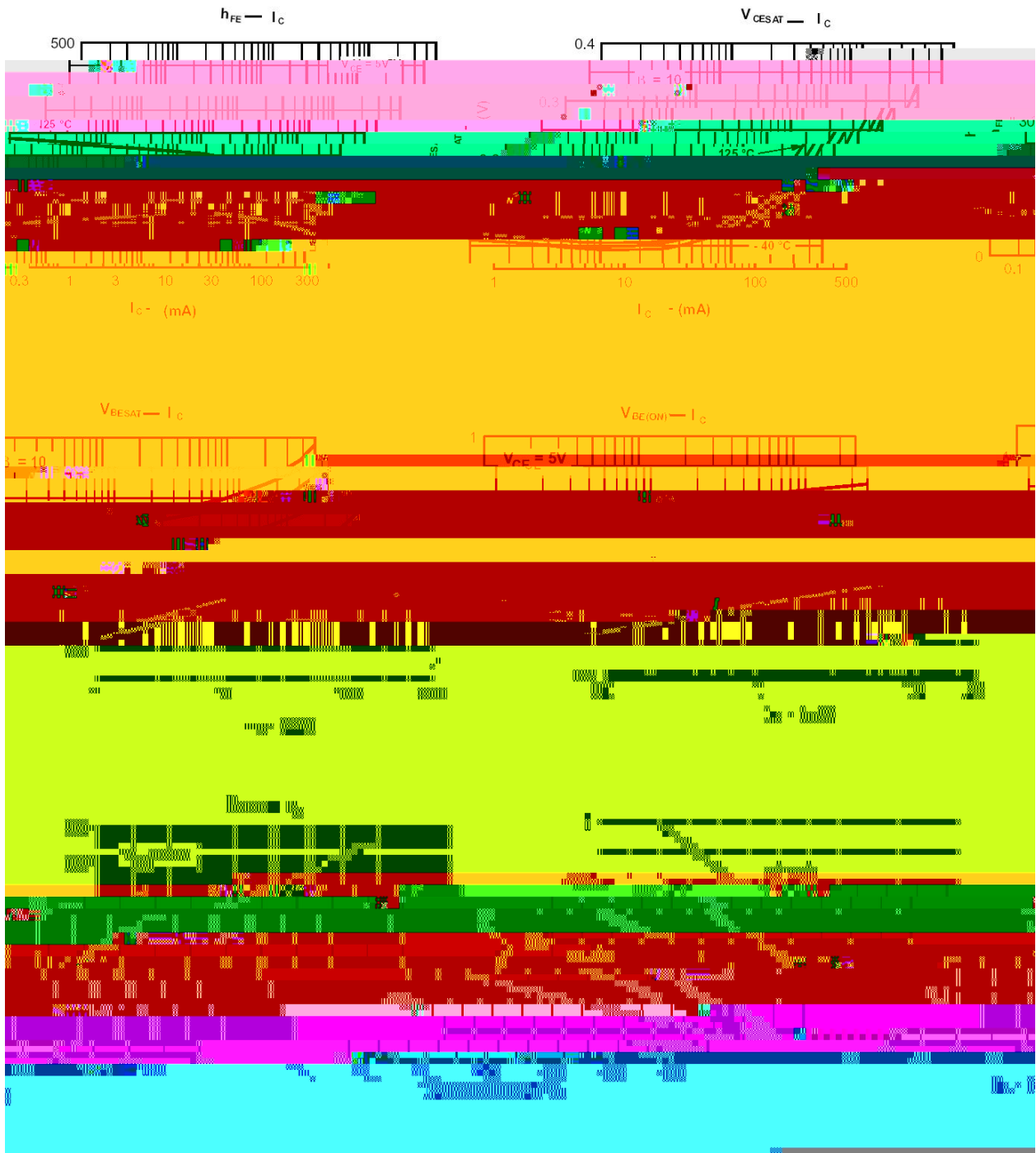
/ Electrical Characteristics(Ta=25 °C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Emitter Saturation Voltage	$V_{CE(sat)} (1)$	$I_C=150mA$ $I_B=15mA$			0.3	V
	$V_{CE(sat)} (2)$	$I_C=500mA$ $I_B=50mA$			1.0	V
Base-Emitter Saturation Voltage	$V_{BE(sat)} (1)$	$I_C=150mA$ $I_B=15mA$	0.6		1.2	V
	$V_{BE(sat)} (2)$	$I_C=500mA$ $I_B=50mA$			2.0	V
Transition Frequency(Note 3)	f_T	$V_{CE}=20V$ $I_C=20mA$ $f=100MHz$	300			MHz
Output Capacitance	C_{ob}	$V_{CB}=10V$ $I_E=0$ $f=1.0MHz$			8.0	pF
Input Capacitance	C_{ib}	$V_{EB}=0.5V$ $I_C=0$ $f=1.0MHz$			25	pF
Input Impedance	h_{ie}	$I_C=1.0mA$ $V_{CE}=10V$ $f=1.0kHz$	2.0		8.0	kF
		$I_C=10mA$ $V_{CE}=10V$ $f=1.0kHz$	0.25		1.25	kF
Voltage Feedback Ratio	h_{re}	$I_C=1.0mA$ $V_{CE}=10V$ $f=1.0kHz$			8.0	$\times 10^{-4}$
		$I_C=10mA$ $V_{CE}=10V$ $f=1.0kHz$			4.0	$\times 10^{-4}$
Small Signal Current Gain	h_{fe}	$I_C=1.0mA$ $V_{CE}=10V$ $f=1.0kHz$	50		300	-
		$I_C=10mA$ $V_{CE}=10V$ $f=1.0kHz$	75		375	-
Output Admittance	h_{oe}	$I_C=1.0mA$ $V_{CE}=10V$ $f=1.0kHz$	5.0		35	Pmhos
		$I_C=10mA$ $V_{CE}=10V$ $f=1.0kHz$	25		200	Pmhos
Collector Base Time Constant	r_b, C_c	$I_E=20mA$ $V_{CB}=20V$ $f=31.8MHz$			150	Ps
Noise Figure	NF	$I_C=100\mu A$ $V_{CE}=10V$ $R_S=1.0kF$ $f=1.0kHz$			4.0	dB
Turn-on Time	t_d	$V_{CC}=30V$ $I_C=150mA$ $V_{BE(OFF)}=-0.5V$			10	ns
Storage Time	t_r	$I_{B1}=15mA$			25	ns
	t_s	$V_{CC}=30V$ $I_C=150mA$			225	ns
Fall Time	t_f	$I_{B1}=I_{B2}=15mA$			60	ns

Note2 . Pulse Test: Pulse Width 300Ps, Duty Cycle 2.0%.

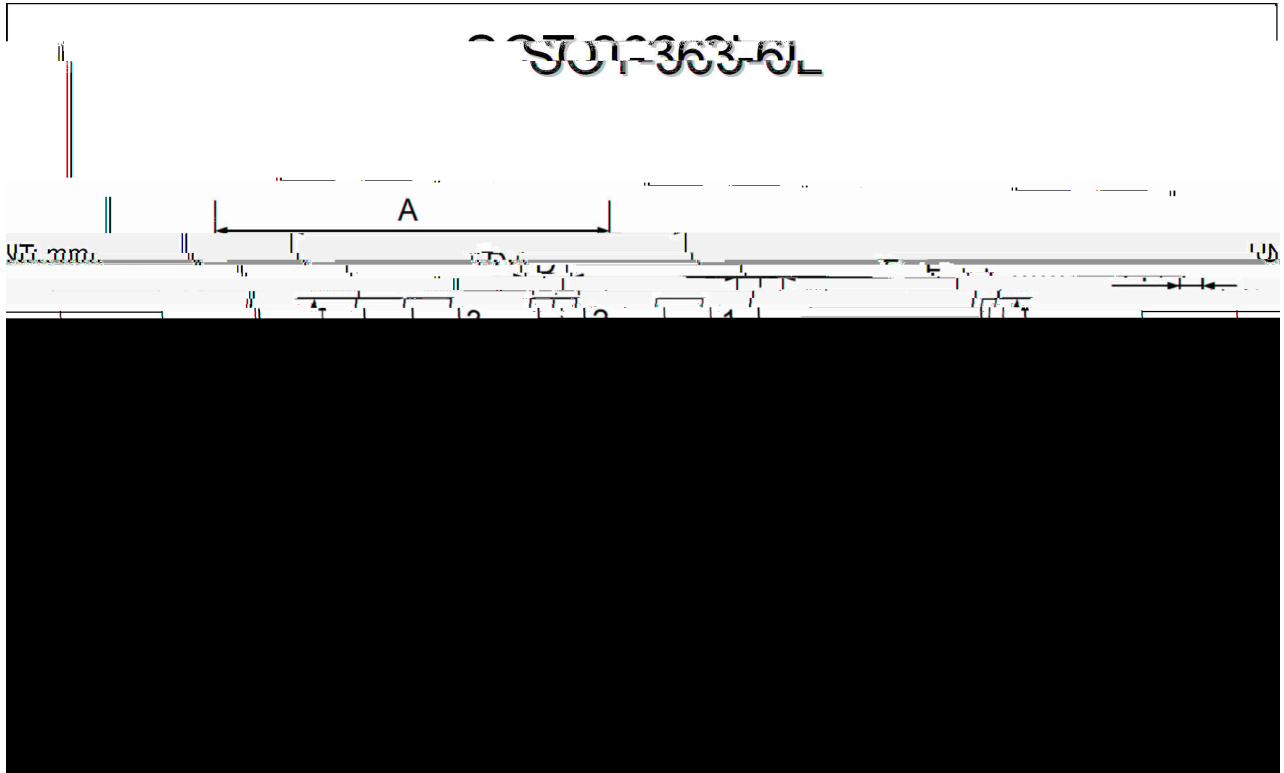
Note3: f_T is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.

/ Electrical Characteristic Curve

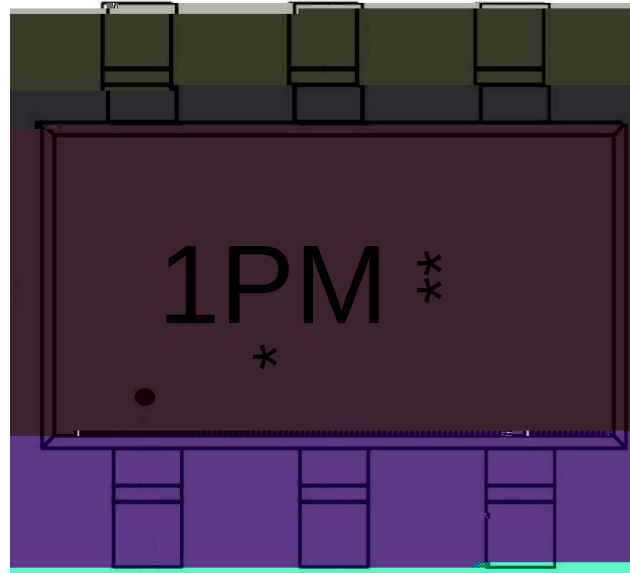




/ Package Dimensions



/ Marking Instructions



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Lot No. Code, code change with Lot No.

