

# MMDT2222A

Rev.C Oct.-2021

JF K\$ - \* E GE ; f l Yd silicon NPN transistor in a SOT-363 Plastic Package.

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Collector currents 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 <sup>Note1</sup>	$P_D$	150	mW
Junction Temperature	$T_j$	-55 +150	
Storage Temperature Range	$T_{stg}$	-55 +150	

Note1 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	$V_{CBO}$	$I_C = 10\text{ A}$ $I_E = 0$	75			V
Collector-Emitter Breakdown Voltage	$V_{CEO}$	$I_C = 10\text{mA}$ $I_B = 0$	40			V
Emitter-Base Breakdown Voltage	$V_{EBO}$	c				

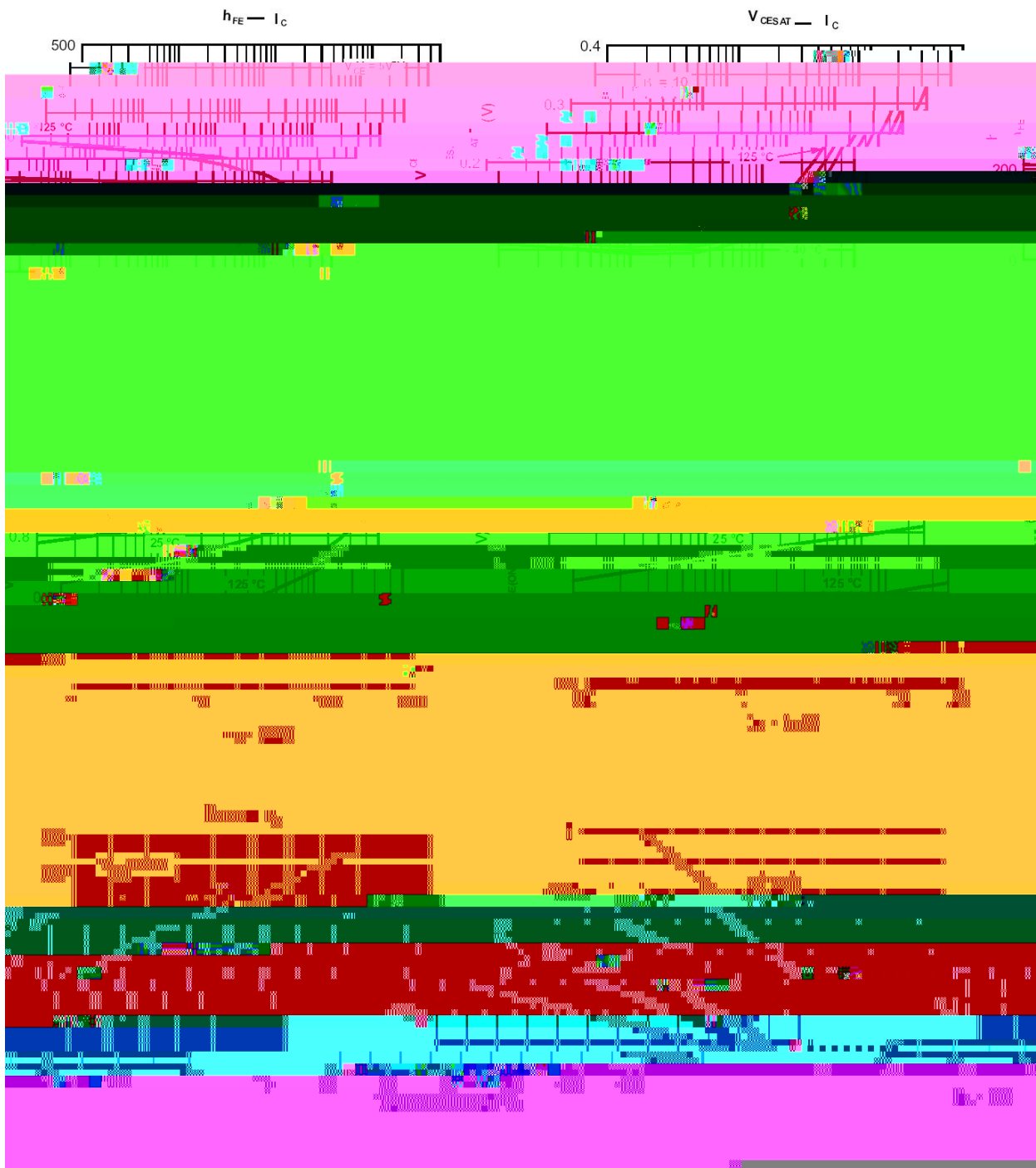
/ Electrical Characteristics(Ta=25 )

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	
Input Impedance	$h_{ie}$	$I_C=1.0mA$ $V_{CE}=10V$ $f=1.0kHz$	2.0		8.0	k
		$I_C=10mA$ $V_{CE}=10V$ $f=1.0kHz$	0.25		1.25	
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	
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	mhos
		$I_C=10mA$ $V_{CE}=10V$ $f=1.0kHz$	25		200	
Collector Base Time Constant	$r_b, C_c$	$I_E=20mA$ $V_{CB}=20V$ $f=31.8MHz$			150	Ps
Noise Figure	NF	$I_C=100 A$ $V_{CE}=10V$ $R_S=1.0k$ $f=1.0 kHz$			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
Fall Time	$t_s$	$V_{CC}=30V$ $I_C=150mA$			225	ns
	$t_f$	$I_{B1}=I_{B2}=15mA$			60	ns

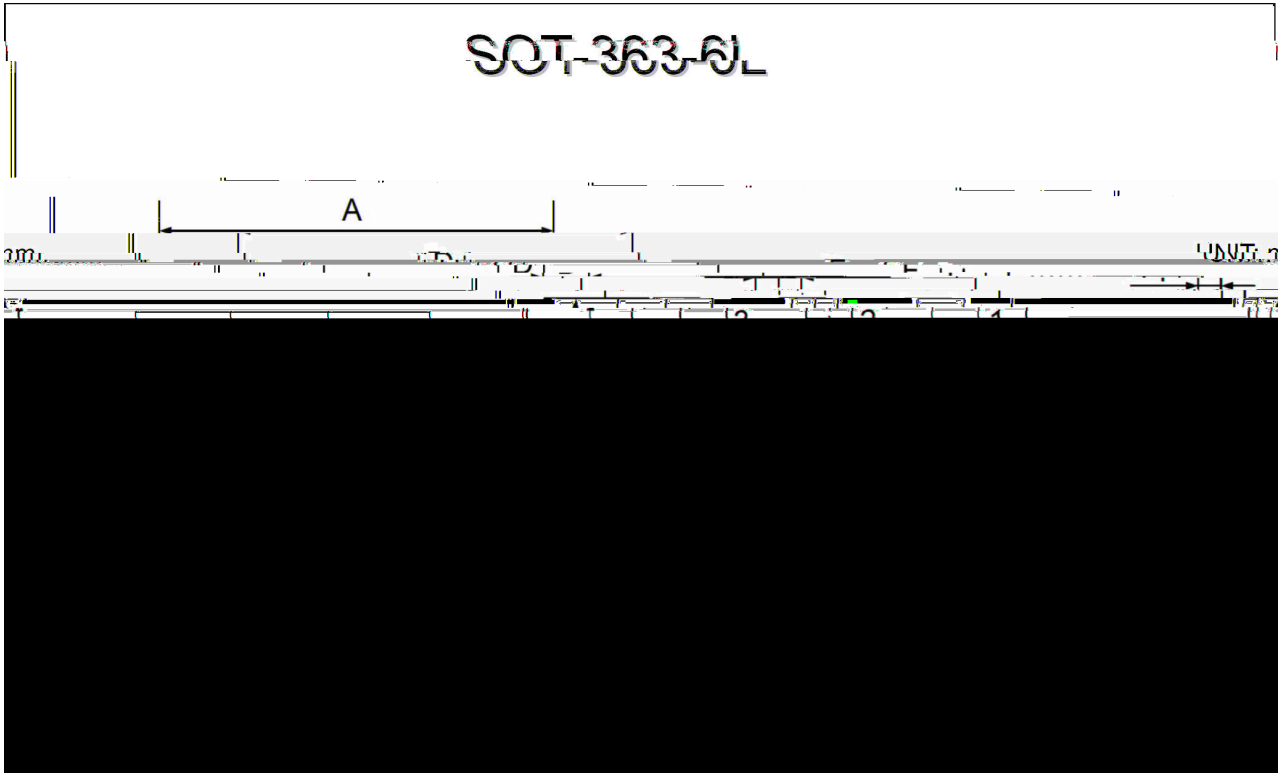
Note2 . Pulse Test: Pulse Width 300 s, Duty Cycle 2.0%.

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

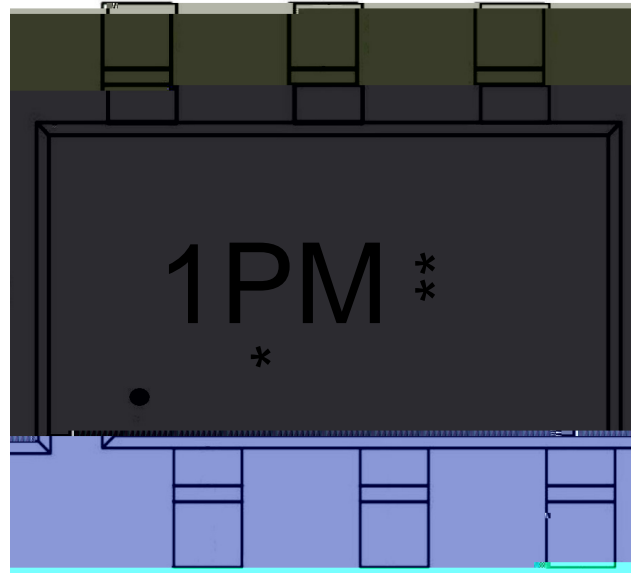
/ Electrical Characteristic Curve



/ Package Dimensions



/ Marking Instructions



- ( GD )
- !!!1
- Note:
- ( GD ) Product Type Code
- !!!1 Lot No. Code, code change with Lot No.

