JJMICROELECTRONICS

650V 6A T c a d F d S IGBT

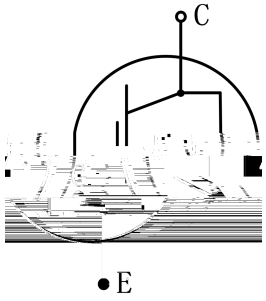
JJT6N65ST

- $_{CE}$=650V
- $_{C}$=6A@ $_{C}$=100
- $_{CE(sat)}$=1.7 V

TO-252

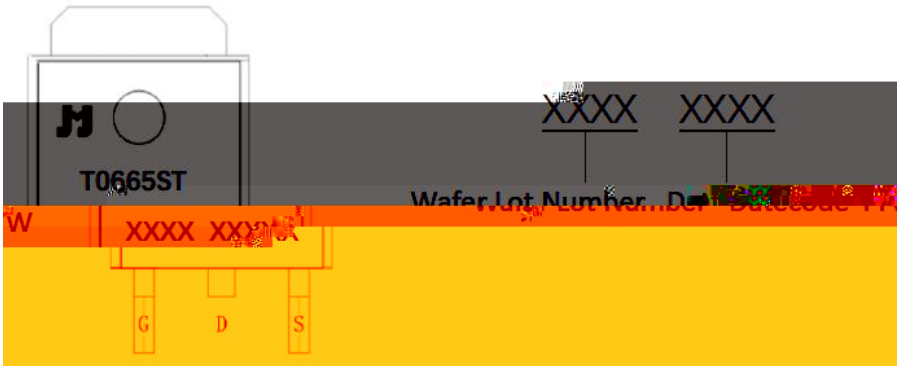


- High ruggedness performance
- Very tight parameter distribution
- Positive $_{CE\ (sat)}$ temperature coefficient
- High efficiency for motor control
- Excellent current sharing in parallel operation
- RoHS compliant



- Home appliances
- Motor drives
- Fan, Pumps, Vacuum cleaner

Type	Marking	Package	Packaging method
JJT6N65ST	T0665ST	TO-252	Tape and reel



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CES	Collector-emitter voltage	650	V
GES	Gate-emitter voltage	±20	V
C	Continuous collector current (C=25)	12	A
	Continuous collector current (C=100)	6	A
CM	Pulsed collector current, p limited by vjmax	24	A
F	Diode continuous forward current (C=100)	6	A
FM	Diode maximum current, p limited by vjmax	24	A
sc	Short circuit withstand time	10	µs
tot	Power dissipation (C=25)	60	W
	Power dissipation (C=100)	30	W
vj	Operating junction temperature range	-40 to +175	
STG	Storage temperature range	-55 to +150	

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($_{vj}$=25 unless otherwise specified)

Static characteristics

$_{CES}$	Collector-emitter breakdown voltage	$_{GE}$=0V, $_{C}$=250μA	650	-	-	V
$_{CES}$	Collector-emitter leakage current	$_{CE}$=650V, $_{GE}$=0V	-	-	10	μA
$_{GES}$	Gate leakage current, forward	$_{GE}$=20V, $_{CE}$=0V	-	-	100	nA
	Gate leakage current, reverse	$_{GE}$=-20V, $_{CE}$=0V	-	-	-100	nA
$_{GE(th)}$	Gate-emitter threshold voltage	$_{GE}$=V_{CE}, $_{C}$=1mA	5.7	6.2	6.7	V
$_{CE(sat)}$	Collector-emitter saturation voltage	$_{GE}$=15V, $_{C}$=6A	-	1.7	-	V
		$_{GE}$=15V, $_{C}$=6A, $_{vj}$=175	-	2.2	-	V

Dynamic characteristics

$_{ies}$	Input capacitance	$_{CE}$=30V $_{GE}$=0V =1MHz	-	480	-	pF
$_{oes}$	Output capacitance		-	22	-	pF
$_{res}$	Reverse transfer capacitance		-	8	-	pF
$_{g}$	Total gate charge	$_{CC}$=520V $_{GE}$=15V $_{C}$=6A	-	19	-	nC

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		$_F$=6A	-	1.6	-	V
$_F$	Diode forward voltage	$_F$=6A, $_{vj}$=175	-	1.4	-	V
$_{rr}$	Diode reverse recovery time	$_R$=400V	-	55	-	ns
$_{rrm}$	Diode peak reverse recovery current	$_F$=6A d $_F$/d =-500A/μs	-	10	-	A
$_{rr}$	Diode reverse recovery charge		-	306	-	nC
$_{rr}$	Diode reverse recovery time	$_R$=400V $_F$=6A d $_F$&i } s				

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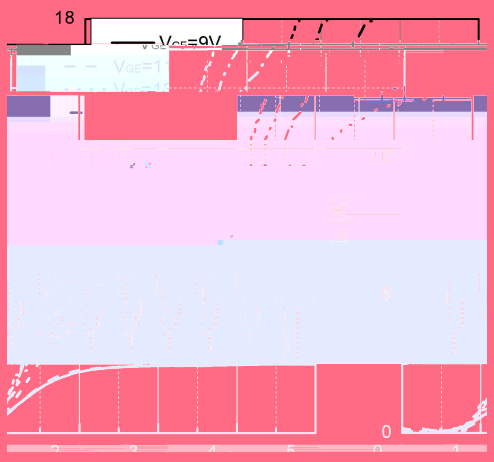


Fig 1. Typical output characteristic ($_{vj}$=25)

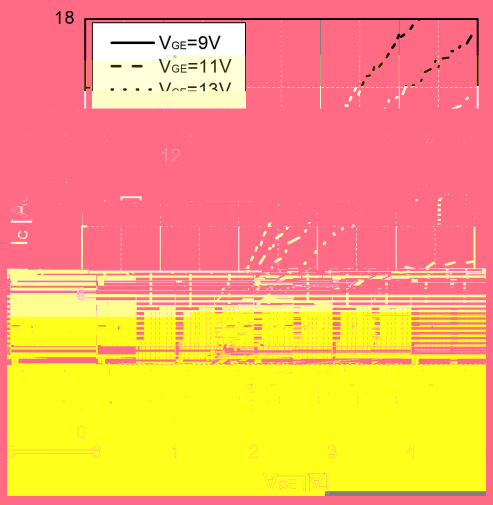


Fig 2. Typical output characteristic($_{vj}$=175)

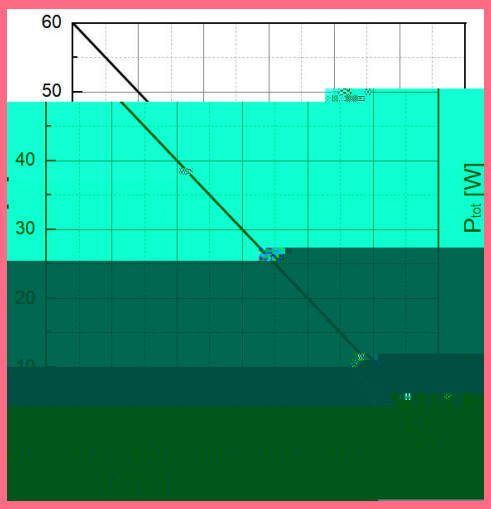


Fig 3.Power dissipation as a function of

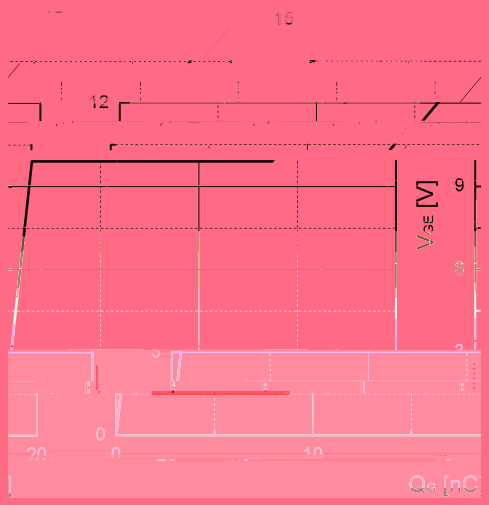


Fig 4. Typical Gate charge

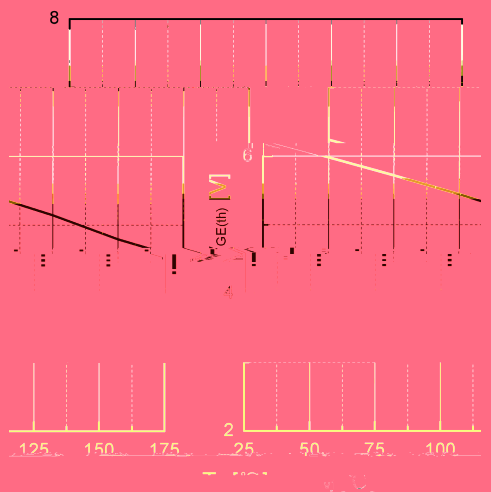


Fig 5. Typical $_{GE(th)}$ as a function of $_{vj}$ ($_{C}$=1mA)

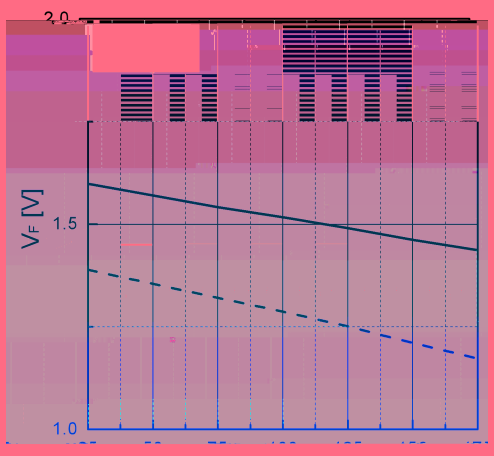


Fig 6. Typical $_{F}$

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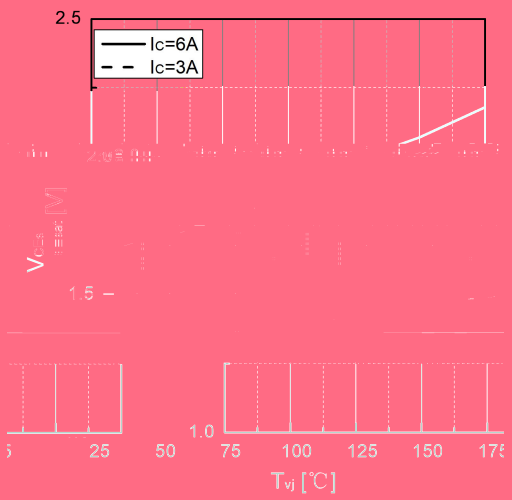


Fig 7. Typical $_{CEsat}$ as a function of $_{vj}$

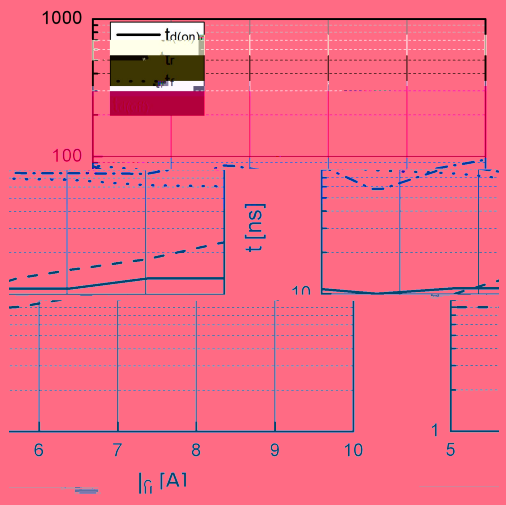


Fig 8. Typical switching time as a function of $_{C}$

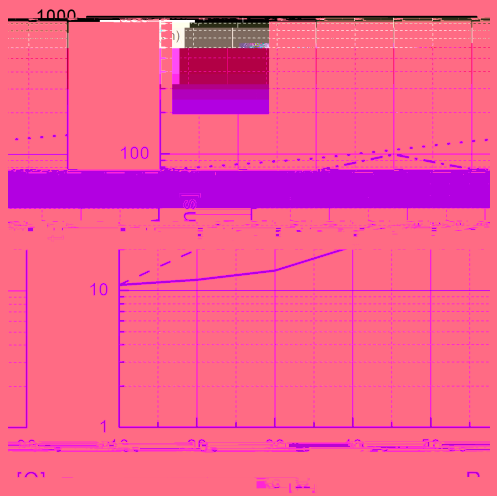


Fig 9. Typical switching times as a function of $_{G}$

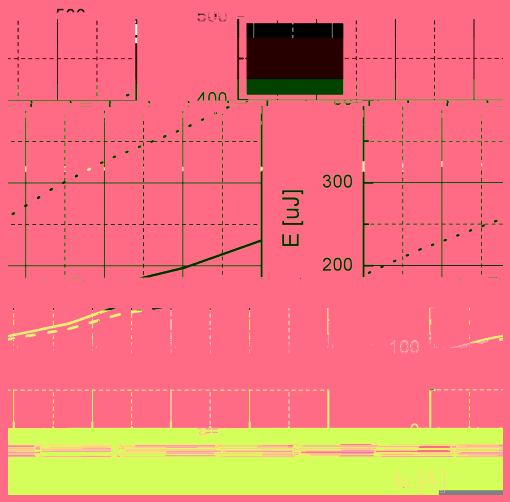


Fig 10. Typical switching energy losses as a function of $_{C}$

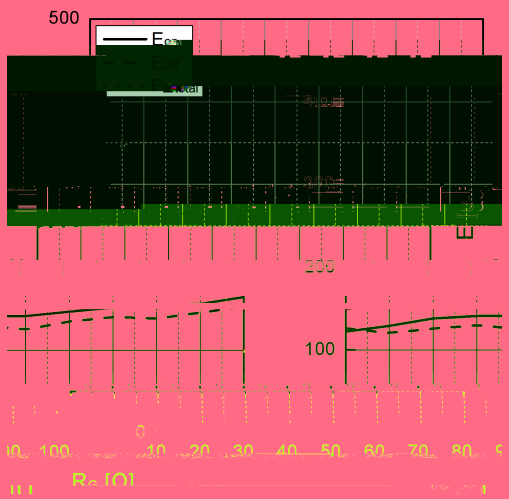


Fig 11. Typical switching energy losses as a function of $_{G}$

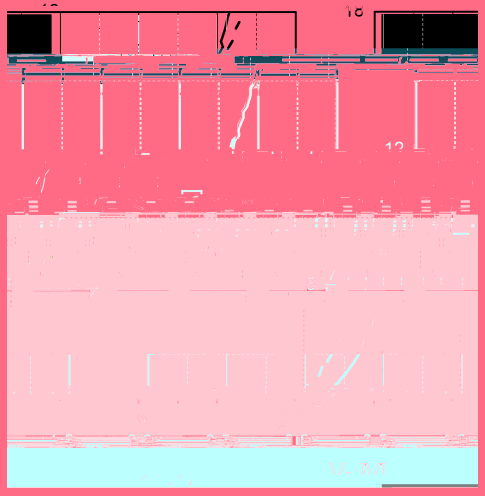


Fig 12. Typical $_{F}$

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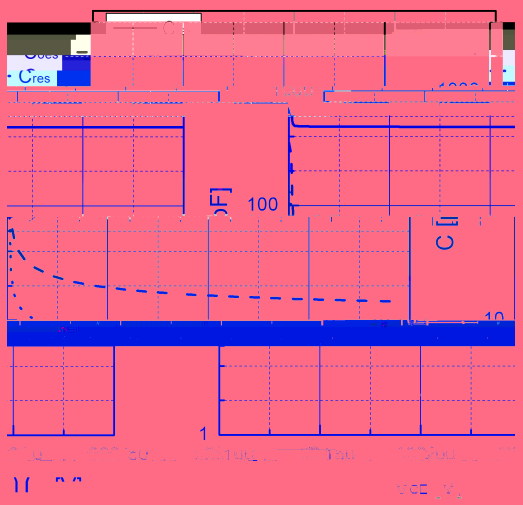


Fig 13. Typical capacitance as a function of $_{CE}$ ($f=1Mhz$, $_{GE}=0V$)

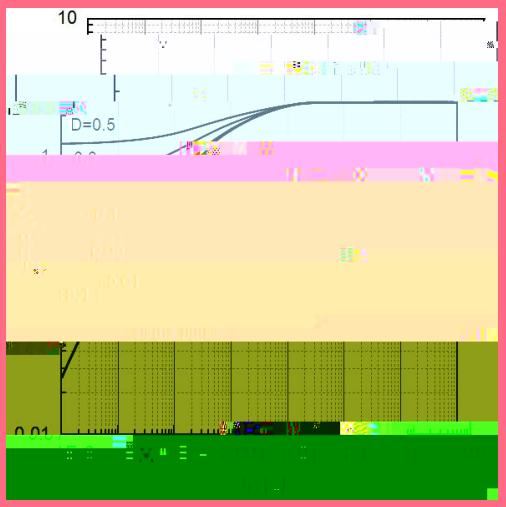
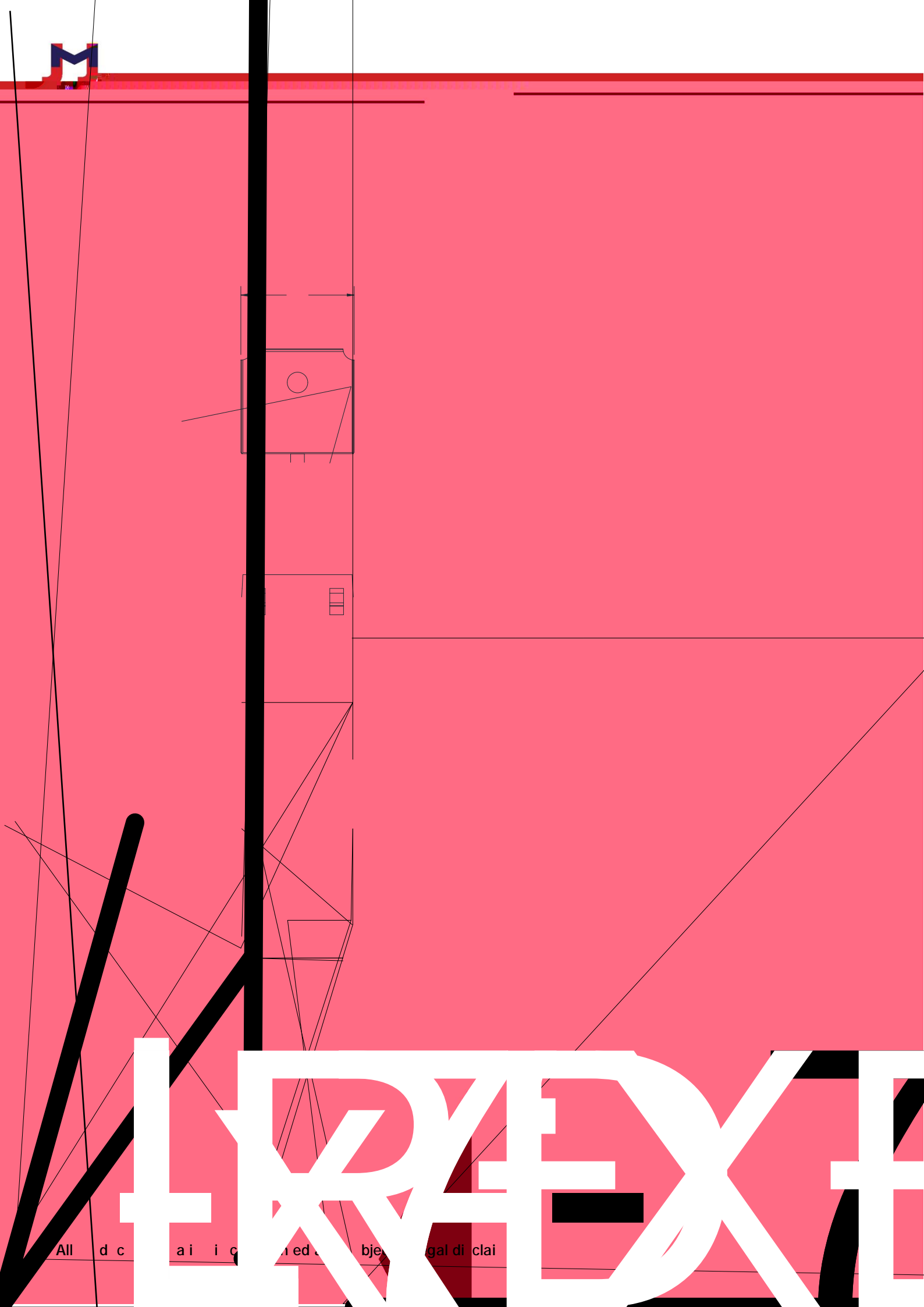


Fig 14. Transient thermal impedance of IGBT

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Date	Revision
2024-[illegible]	Rev [illegible]
2025-01-13	Rev 1.2
2025-04-08	Rev 1.3
2025-12-23	Rev 1.4
2026-06-23	Rev 1.5

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