JJMICROELECTRONICS

650V 15A Trench and Field Stop IGBT

JJT15N65SC

- 650
- A(…=1
- $V_{CE(sat)}$=
- High rug…nes… …erform…e
- …s short …uit… …ility.

V_{CES}	Collector-emitter voltage	650	V
V_{GES}	Gate-emitter voltage	±20	V
I_C	Continuous collector current (T_C=25)	30	A
	Continuous collector current (T_C=100)	15	A
I_{CM}	Pulsed collector current, t_p limited by T_{vjmax}	60	A
I_F	Diode continuous forward current (T_C=100)	15	A
I_{FM}	Diode maximum current, t_p limited by T_{vjmax}	60	A
t_{sc}	Short circuit withstand time	10	μs
P_{tot}	Power dissipation (T_C=25)	150	W
	Power dissipation (T_C=100)	75	W
T_{vj}	Operating junction temperature range	-40 to +175	
T_{stg}	Storage temperature range	-55 to +150	

$R_{th(j-c)}$	Thermal resistance, junction to case for IGBT	-	1.0	K/ W
$R_{th(j-c)}$	Thermal resistance, junction to case for Diode	-	1.5	K/ W
$R_{th(j-a)}$	Thermal resistance, junction to ambient	-	60	K/ W

CES	Collector-emitter breakdown voltage	GE=0V, C=250μA	650	-	-	V
CES	Collector-emitter leakage current	CE=650V, GE=0V	-	-	50	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= CE, C=1mA	5.1	5.6	6.1	V
CE(	Collector-emitter saturation voltage	GE=18, א p ϟ				

Switching characteristics

$t_{d(on)}$	Turn-on delay time	V_{CC}=400V V_{GE}=0/15V I_C=15A R_G=10 Inductive load	-	17	-	ns
t_r	Rise time		-	14	-	ns
$t_{d(off)}$	Turn-off delay time		-	104	-	ns
t_f	Fall time		-	46	-	ns
E_{on}	Turn-on energy		-	0.30	-	mJ
E_{off}	Turn-off energy		-	0.27	-	mJ
E_{ts}	Total switching energy		-	0.57	-	mJ
$t_{d(on)}$	Turn-on delay time	V_{CC}=400V V_{GE}=0/15V I_C=15A R_G=10 Inductive load T_{vj}=175	-	17	-	ns
t_r	Rise time		-	15	-	ns
$t_{d(off)}$	Turn-off delay time		-	123	-	ns
t_f	Fall time		-	82	-	ns
E_{on}	Turn-on energy		-	0.39	-	mJ
E_{off}	Turn-off energy		-	0.42	-	mJ
E_{ts}	Total switching energy		-	0.81	-	mJ

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

$_{F}$	Diode forward voltage	$_{F}$=15A	-	1.4	-	V
		$_{F}$=15A, $_{vj}$=175	-	1.1	-	V
$_{rr}$	Diode reverse recovery time	$_{R}$=400V $_{F}$=15A d $_{F}$/d =-600A/μs	-	55	-	ns
$_{rrm}$	Diode peak reverse recovery current		-	9.5	-	A
$_{rr}$	Diode reverse recovery charge		-	220	-	nC
$_{rr}$	Diode reverse recovery time	$_{R}$=400V $_{F}$=15A d $_{F}$/d =-600A/μs $_{vj}$=175	-	77	-	ns
$_{rrm}$	Diode peak reverse recovery current		-	15	-	A
$_{rr}$	Diode reverse recovery charge		-	481	-	nC

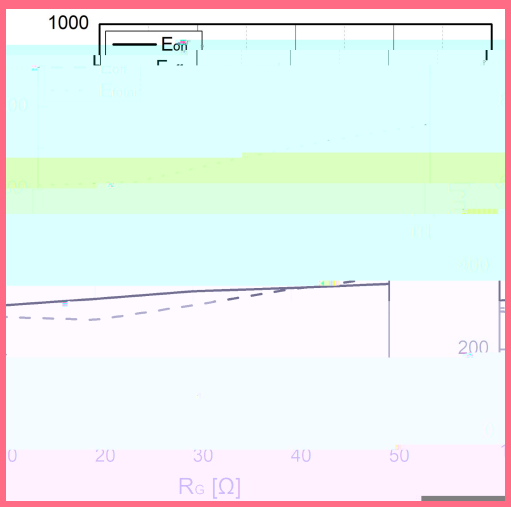


Fig 13. Typical switching energy losses as a function of R_G

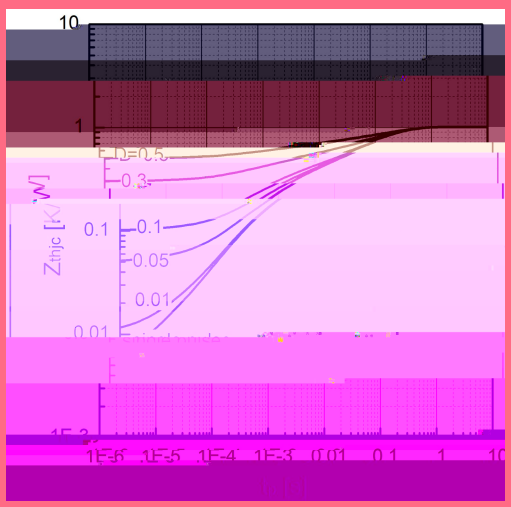
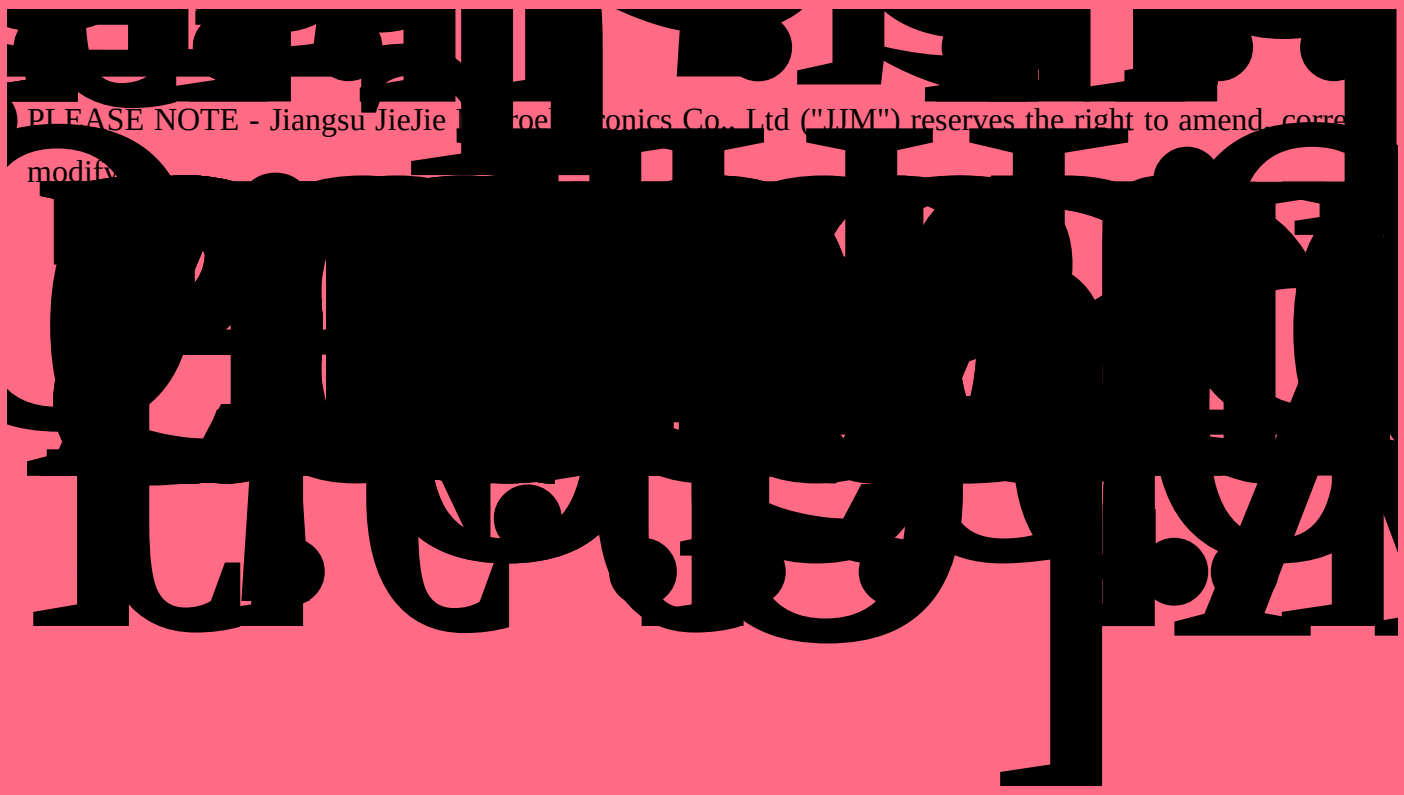


Fig 14. Transient thermal impedance, IGBT

Dimensions						
Ref.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90	-	1			

Date	Revision	Changes
2023-11-01	Rev 1.0	Release of the datasheet
2025-04-08	Rev 1.1	Character Update



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