JJMICROELECTRONICS

Symbol	Parameter	Values	Unit
V_{CES}	Collector-emitter voltage	650	V
V_{GES}	Gate-emitter voltage	±20	V
I_C	Continuous collector current (T_C=25)	12	A
	Continuous collector current (T_C=100)	6	A
I_{CM}	Pulsed collector current, t_p limited by T_{vjmax}	24	A
I_F	Diode continuous forward current (T_C=100)	6	A
I_{FM}	Diode maximum current, t_p limited by T_{vjmax}	24	A
t_{sc}	Short circuit withstand time	8	μs
P_{tot}	Power dissipation (T_C=25)	88	W
	Power dissipation (T_C=100)	44	W
T_{vj}	Operating junction temperature range	-40 to +175	
T_{stg}	Storage temperature range	-55 to +150	

Symbol	Parameter	Test condition	Values			Unit
			Min.	Typ.	Max.	
$_{CES}$	Collector-emitter breakdown voltage	$_{GE}$=0V, $_{C}$=250μA	650	-	-	V
$_{CES}$	Collector-emitter leakage current	$_{CE}$=650V, $_{GE}$=0V	-	-	10	μ

Symbol	Parameter	Test condition	Values			Unit
			Min.	Typ.	Max.	
$t_{d(on)}$	Turn-on delay time		-	9	-	ns
t_r	Rise time		-	18	-	ns
$t_{d(off)}$	Turn-off delay time	V_{CC}=400V V_{GE}=0/15V	-	24	-	ns
t_f	Fall time	I_C=6A R_G=10	-	91	-	ns
E_{on}	Turn-on energy	Inductive load	-	0.18	-	mJ
E_{off}	Turn-off energy		-	0.09	-	mJ
E_{ts}	Total switching energy		-	0.27		

Electrical characteristics of Diode ($_{vj}$=25 unless otherwise specified)

Symbol	Parameter	Test condition	Values			Unit
			Min.	Typ.	Max.	
$_{F}$	Diode forward voltage	$_{F}$=6A	-	1.4	-	V
		$_{F}$=6A, $_{vj}$=175	-	1.2	-	V
$_{rr}$	Diode reverse recovery time	$_{R}$=400V $_{F}$=6A d $_{F}$/d =-500A/μs	-	55	-	ns
$_{rrm}$	Diode peak reverse recovery current		-	10	-	A
$_{rr}$	Diode reverse recovery charge		-	306	-	nC
$_{rr}$	Diode reverse recovery time	$_{R}$=400V $_{F}$=6A d $_{F}$/d =-500A/μs $_{vj}$=175	-	98	-	ns
$_{rrm}$	Diode peak reverse recovery current		-	12	-	A
$_{rr}$	Diode reverse recovery charge		-	529	-	nC

Typical performance characteristics

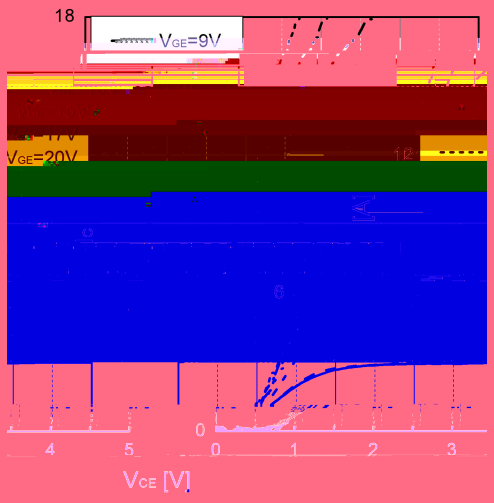


Fig 1. Typical output characteristic (vj=25)

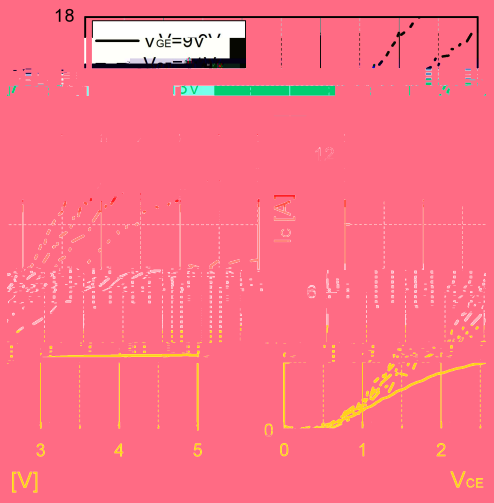


Fig 2. Typical output characteristic(vj=175)

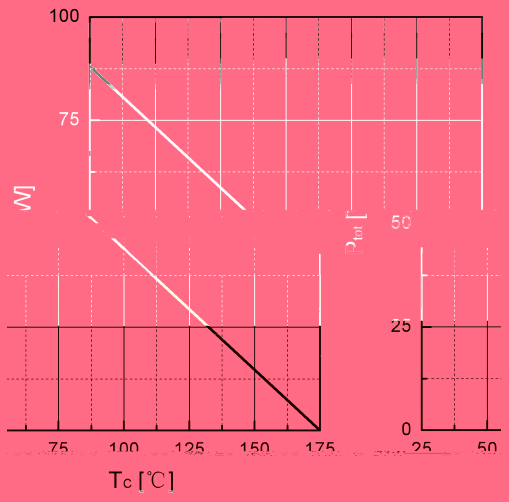


Fig 3.Power dissipation as a function of

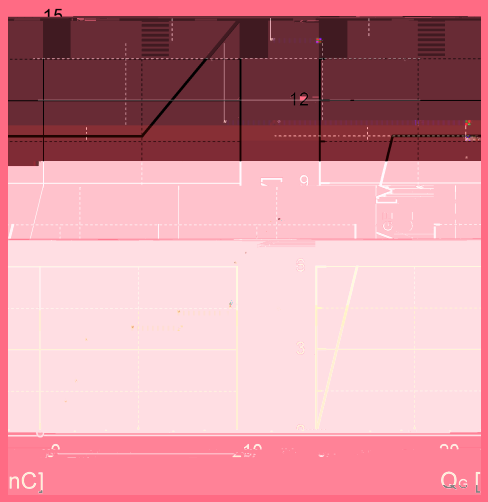


Fig 4. Typical Gate charge

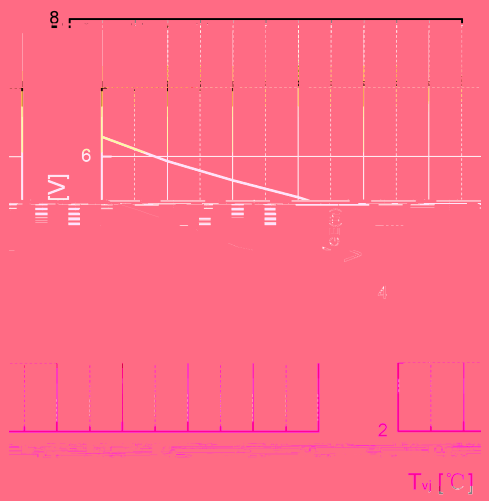


Fig 5. Typical GE(th) as a function of vj (C=1mA)

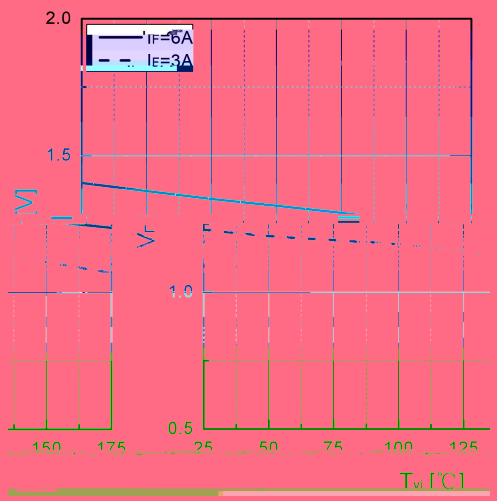


Fig 6. Typical F as a function of vj

Typical performance characteristics

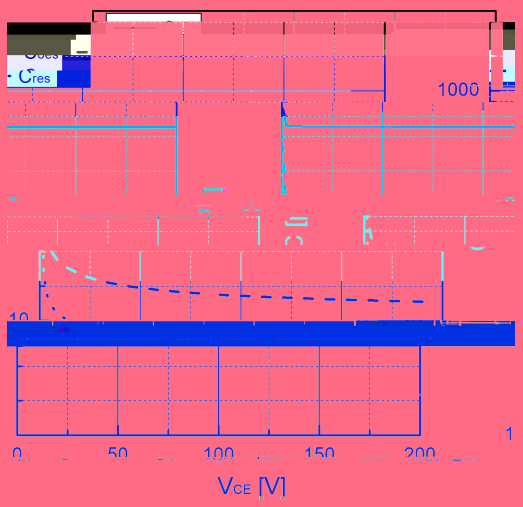
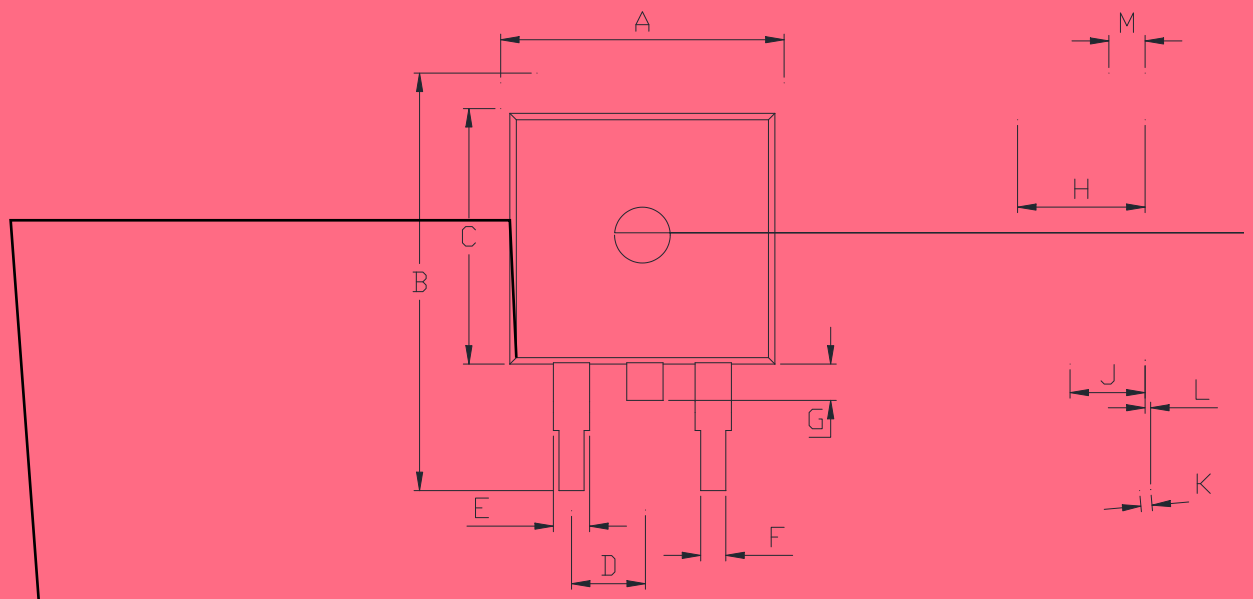


Fig 13. Typical capacitance as a function of $_{CE}$ (f=1Mhz,

Package dimension

TO-263



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90	-	10.20	0. 0	-	0.402
B	14.70	-	15.80	0.5	-	0. 2
C	9.4	-	9.6	0.	-	0. 8
D	-	2.54	-	-	0.100	-
E	1.20	-	1.40	0.047	-	0.055
F	0.75	-	0.85	0.029	-	0.033
G	-	-	1.75	-	-	0.069
H	4.40	-	4.70	0.1	-	0.185
J	2.	-	2.70	0.091	-	0.106
K	0.	-	0.55	0.015	-	0.022
L	M	M10	M25	M	M004	M010
M	1.25	-	1.	0.049	-	0.053

Date	Revision	Changes
2025-03-19	Rev.1.0	Release of the datasheet

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