Main Product Characteristics:

Features and Benefits:

Applications:

Absolute Max Rating:

Symbol	Parameter	Value	Units
V_{CES}	Collector-Emitter Voltage	700	V
V_{GES}	Gate- Emitter Voltage	30	V
I_C	Collector Current	200	A
	Collector Current @T_C = 100 °C	100	
I_{Cpuls}	Pulsed Collector Current t_p limited by Tjmax	400	
-	Turn off safe operating area V_{CE}=650V T_J=175°C	400	
I_F	Diode Continuous Forward Current @T_C = 25 °C	200	A
	Diode Continuous Forward Current @T_C = 100 °C	100	
I_{FM}	Diode Maximum Forward Current	400	
P_D	Power Dissipation @ T_C = 25°C	428	W
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to +175	°C

Thermal Resistance

Symbol	Characterizes	Typ.	Max.	Units
	Thermal Resistance,Junction-to-case for IGBT			°C
	Thermal Resistance,Junction-to-case for Diode			°C
	Thermal Resistance,Junction-to-ambient			°C

Electrical Characteristics °C

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	700	760		V	V_{GE}=0V,I_{CE}=1mA
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		1.8	2.1	V	I_C=100A ,V_{GE}=15V @T_J 25°C
$V_{GE(th)}$	Gate Threshold Voltage	4.5		6.5	V	I_C=250 $_{CE}$=V_{GE}
I_{CES}	Collector-Emitter Leakage Current			1	A	V_{GE} =0V,V_{CE}=650V
I_{GES}	Gate to Emitter Reverse Leakage			100	nA	V_{GE}=20V,V_{CE} =0V
				-100		V_{GE}=-20V,V_{CE} =0V
C_{ies}	Input capacitance		7300		pF	V_{GS} = 0V V_{DS} = 25V 1MHz
C_{oes}	Output capacitance		245			
C_{res}	Reverse transfer capacitance		150			
$t_{d(on)}$	Turn-on delay time				ns	V_{CC}=400V,I_C=90A, V_{GE}=0/15V, R_g=10
t_r	Rise time					
$t_{d(off)}$	Turn-Off delay time					
t_f	Fall time					
E_{on}	Turn-On Switching Loss				mJ	V_{CC}=400V,I_C=90A, V_{GE}=0/15V, R_g=10
E_{off}	Turn-Off Switching Loss					
E_{ts}	Total Switching Loss					
Q_g	Total Gate Charge				nC	V_{CC}=480V, I_C=100A, V_{GE}=15V
Q_{ge}	Gate to Emitter Charge					
Q_{gc}	Gate to Collector Charge					
	Short circuit collector current					
$I_{C(SC)}$	Max.1000 short circuits Time between short circuits:					

Typical Electrical and Thermal Characteristics

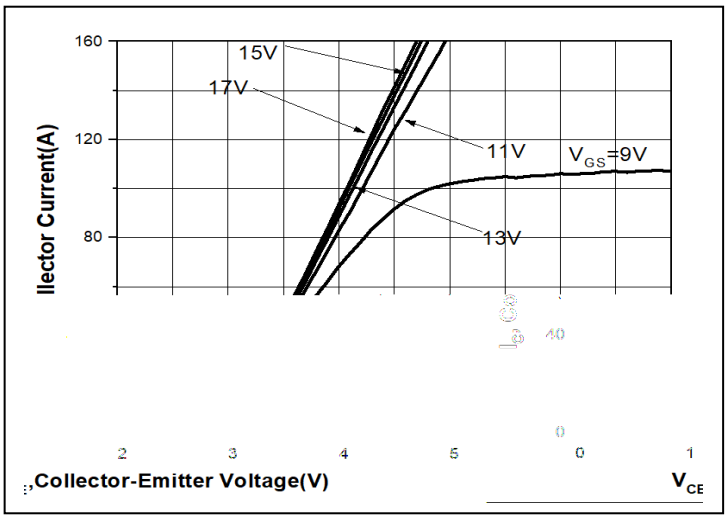


Figure1. Typical Output Characteristics

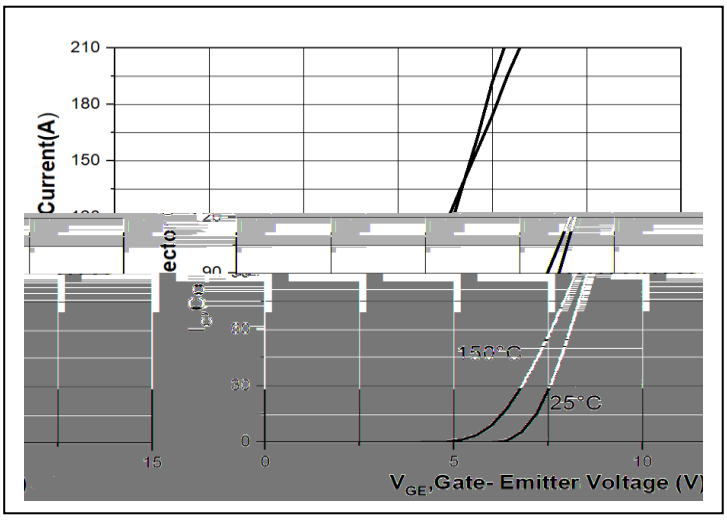


Figure2. Typical Transfer Characteristics

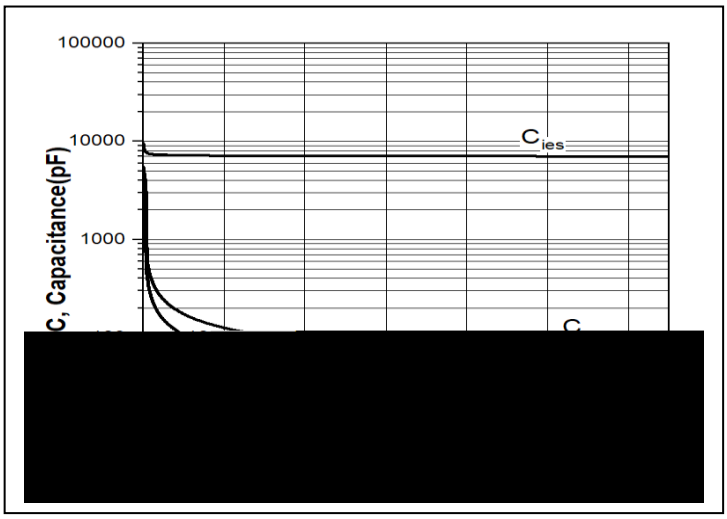


Figure3.Typical Capacitance

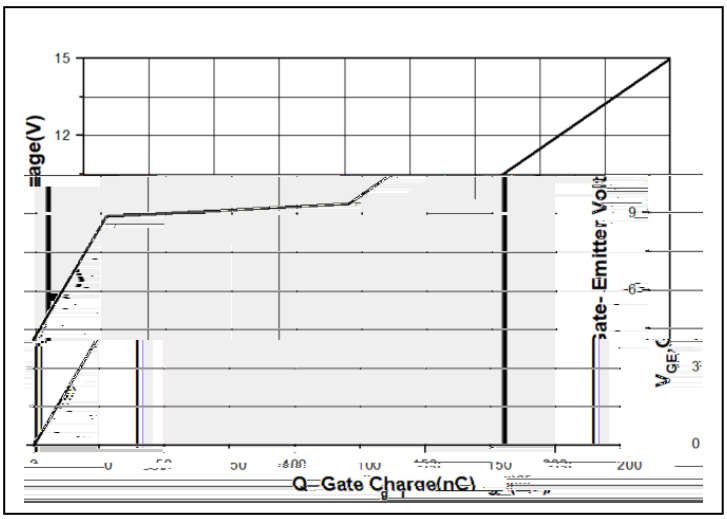


Figure4. Typical Gate Charge

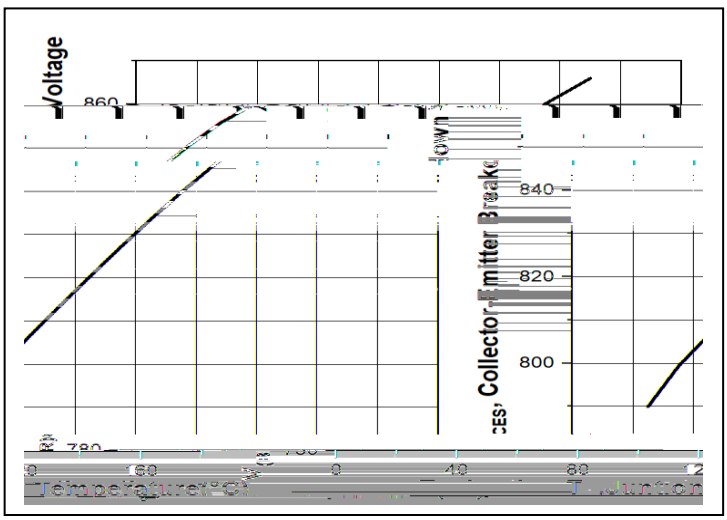


Figure5.Collector-Emitter Breakdown Voltage vs. Temperature

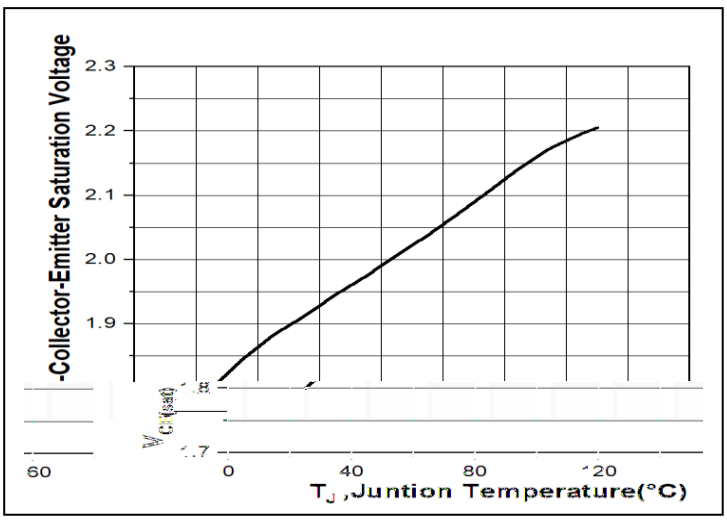


Figure6. Collector-Emitter Saturation Voltage vs. Temperature

Typical Electrical and Thermal Characteristics

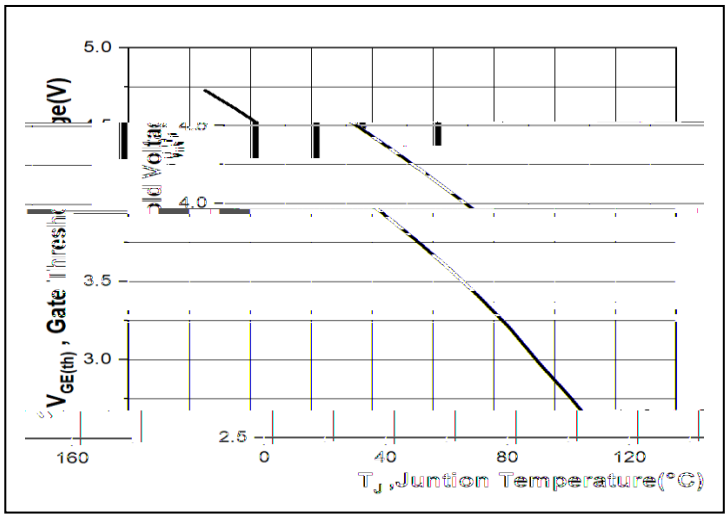


Figure7.Gate Threshold Voltage vs. Temperature

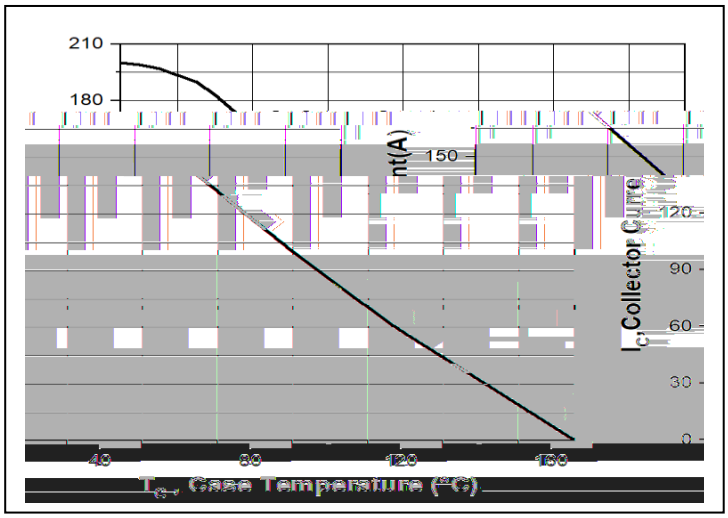


Figure8.Collector Current vs. Temperature

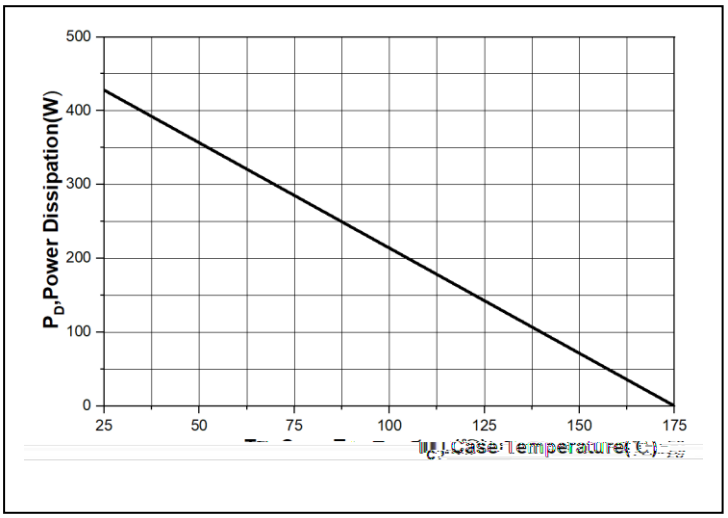
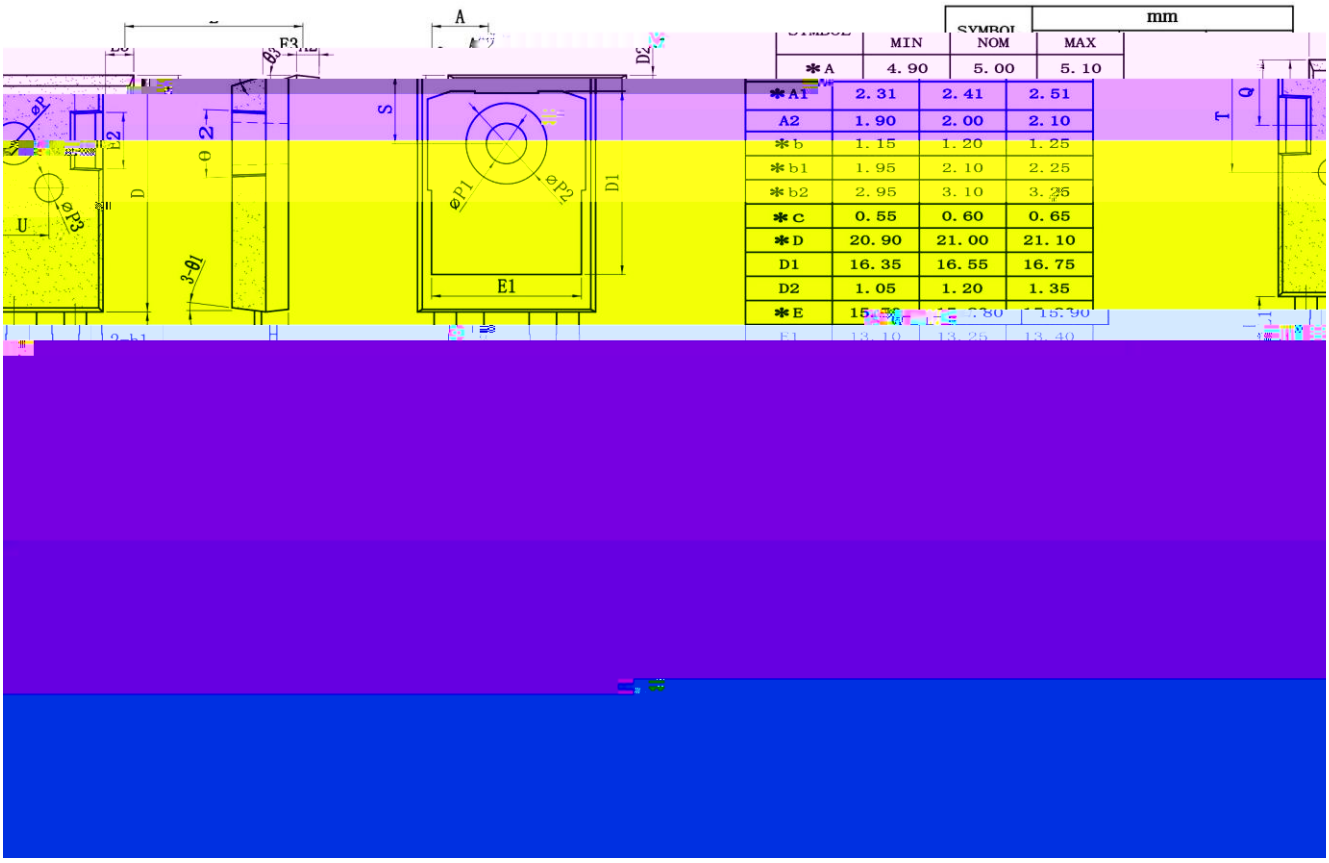


Figure9. Power Dissipation vs. Case Temperature

Mechanical Data

Option1:

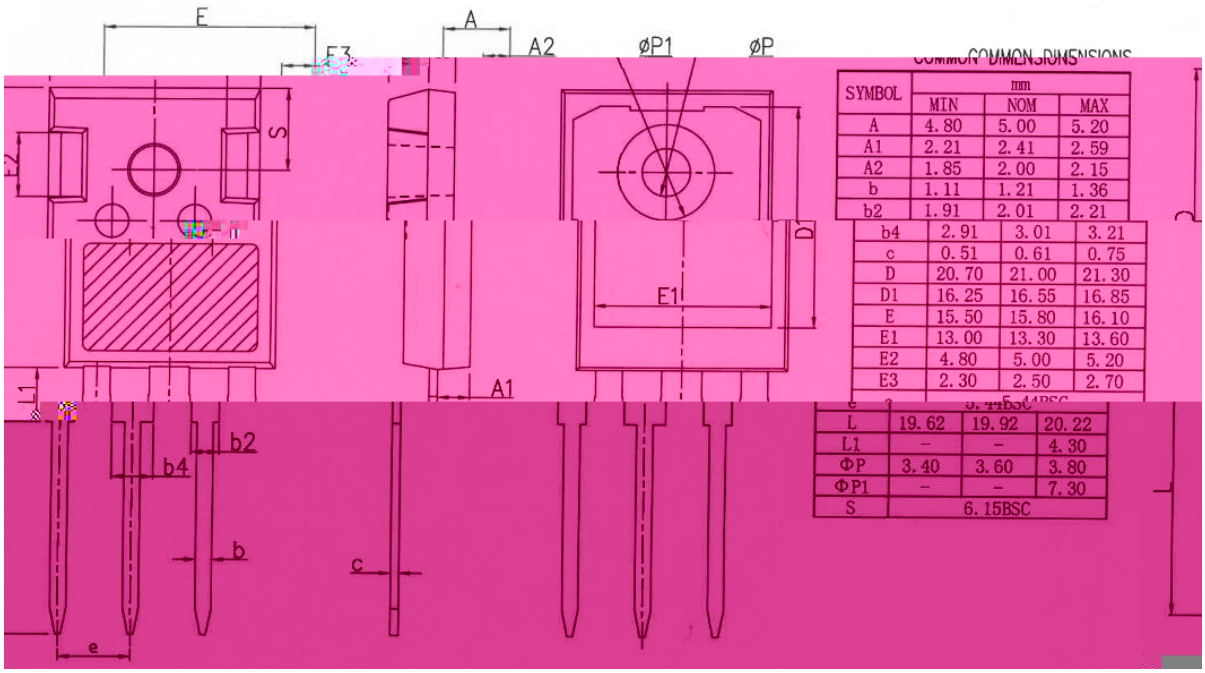
Unit:mm



SYMBOL	mm		
	MIN	NOM	MAX
✻A	4.90	5.00	5.10
✻A1	2.31	2.41	2.51
A2	1.90	2.00	2.10
✻b	1.15	1.20	1.25
✻b1	1.95	2.10	2.25
✻b2	2.95	3.10	3.25
✻c	0.55	0.60	0.65
✻D	20.90	21.00	21.10
D1	16.35	16.55	16.75
D2	1.05	1.20	1.35
✻E	15.30	15.60	15.90
E1	13.10	13.25	13.40

Option2:

Option3:



COMMON DIMENSIONS

SYMBOL	mm		
	MIN	NOM	MAX
A	4.80	5.00	5.20
A1	2.21	2.41	2.59
A2	1.85	2.00	2.15
b	1.11	1.21	1.36
b2	1.91	2.01	2.21
b4	2.91	3.01	3.21
c	0.51	0.61	0.75
D	20.70	21.00	21.30
D1	16.25	16.55	16.85
E	15.50	15.80	16.10
E1	13.00	13.30	13.60
E2	4.80	5.00	5.20
E3	2.30	2.50	2.70
e		5.44BSC	
L	19.62	19.92	20.22
L1	–	–	4.30
ΦP	3.40	3.60	3.80
ΦP1	–	–	7.30
S		6.15BSC	

ATTENTION:

Any and all Silikron products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your Silikron representative nearest you before using any Silikron products described or contained herein in such applications.

Silikron assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all Silikron products described or contained herein.

Specifications of any and all Silikron products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the

equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer

Silikron Microelectronics (Suzhou) Co.,Ltd. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.

In the event that any or all Silikron products(including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.

Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. Silikron believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the Silikron product that you intend to use.