

Silicon Field Stop(FS) Planar IGBT

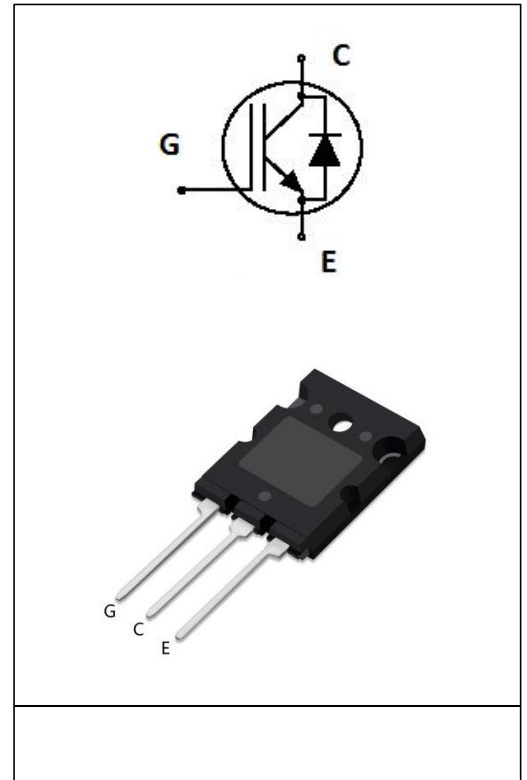
Description

General Features

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Application

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Product Summary

MAXIMUM RATINGS

Collector- to- Emitter Voltage		V_{CE}	1200	V
Gate- to- Emitter Voltage		V_{GE}	± 30	V
Collector Current	$T_C=25$	I_C	150	A
	$T_C=100$		75	
Power Dissipation	$T_C=25$	P_D	789	W
	$T_C=100$		394	

Pulsed Collector Current	$T_C = 25$ $t_p = 10\mu s$ (Note 1)	I_{CM}	225	A
Diode Forward Current	$T_C = 25$	I_F	150	
	$T_C = 100$		75	
Pulsed Diode Forward Current	$T_C = 25$ $t_p = 10\mu s$ (Note 1)	I_{FM}	225	
Short Circuit Withstand Time $V_{GE} = 15V, V_{CC} = 800V, T_C = 150$		T_{SC}	10	μs
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 T_o +175	$^{\circ}C$
Lead Temperature for Soldering Purposes		T_L	270	

THERMAL CHARACTERISTICS

Thermal Resistance, Junction-to-Case for IGBT	R_{thJC}	0.19	/W
Thermal Resistance, Junction-to-Ambient	R_{thJA}	62.5	

ELECTRICAL CHARACTERISTICS

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OFF CHARACTERISTICS

Collector-to-Emitter Breakdown Voltage	BV_{CES}	1200	-	-	V	$V_{GE} = 0V, I_C = 1mA$
Zero Gate Voltage Collector Current	I_{CES}	-	-	40	μA	$V_{GE} = 0V, V_{CE} = V_{CES}$
Gate-to-Emitter leakage Current	I_{GES}	-	-	± 400	nA	$V_{GE} = \pm 30V, V_{CE} = 0V$

ON CHARACTERISTICS

Gate-to-Emitter Threshold Voltage	$V_{GE(th)}$	4.8	-	6.6	V	$V_{GE} = V_{CE}, I_C = 1mA, T_J = 25$
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	-	2.3	2.8	V	$V_{GE} = 15V, I_C = 75A, T_J = 25$

DYNAMIC CHARACTERISTICS

Input Capacitance	C_{IES}	-	6221	-	pF	$V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V},$ $f = 1\text{ MHz}$
Output Capacitance	C_{OES}	-	433	-		
Reverse Transfer Capacitance	C_{RES}	-	140	-		
Total Gate Charge	Q_G	-	310	-	nC	$V_{CE} = 600\text{ V}, V_{GE} = 15\text{ V},$ $I_C = 75\text{ A}$

SWITCHING CHARACTERISTICS

Turn-On Delay Time	$t_{d(on)}$	-	202	-	ns	$V_{CE} = 600\text{ V}$ $V_{GE} = 0/15\text{ V}$ $I_C = 75\text{ A}$ $R_G = 30\ \Omega$ $T_J = 25$
Turn-Off Delay Time	$t_{d(off)}$	-	398	-		
Rise time	t_r	-	42	-		
Fall time	t_f	-	155	-		
Turn-On Switching Loss	E_{on}	-	11	-	mJ	
Turn-Off Switching Loss	E_{off}	-	3.9	-		
Total Switching Loss	E_{ts}	-	14.9	-		

ELECTRICAL CHARACTERISTICS

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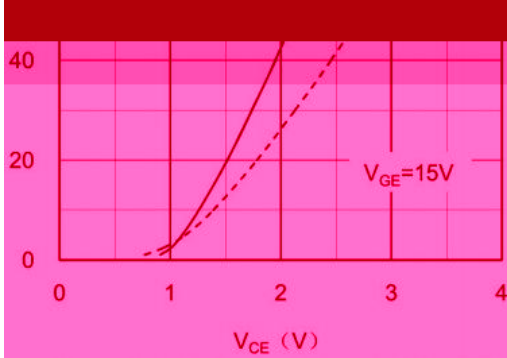
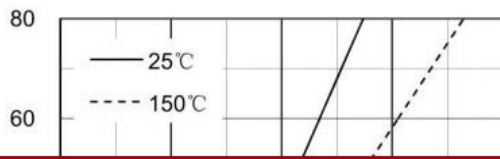
SWITCHING CHARACTERISTICS
DIODE CHARACTERISTICS

Diode Forward Voltage	V_F	-	2.2	3.3	-	$I_F = 75\text{ A}, T_J = 25$
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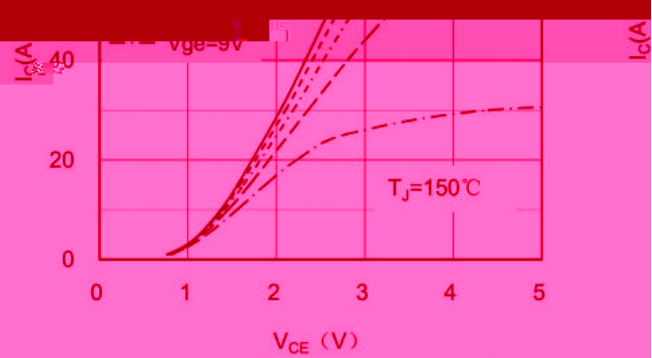
DIODE SWITCHING CHARACTERISTICS, INDUCTIVE LOAD

Reverse Recovery Time	t_{rr}	-	45	-	ns	$V_R = 600\text{ V}, I_F = 75\text{ A},$ $dI_F/dt = 200\text{ A}/\mu\text{s}$ $T_J = 25$
Reverse Recovery Charge	Q_{rr}	-	1300	-	nC	
Reverse Recovery Energy	E_{rec}	-	0.18	-	mJ	
Peak Reverse Recovery Current	I_{RRM}	-	45	-	A	

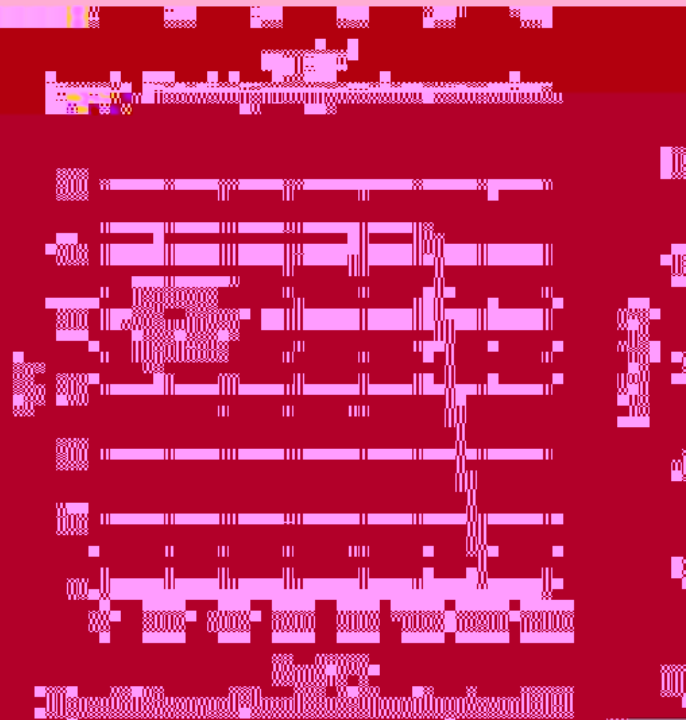
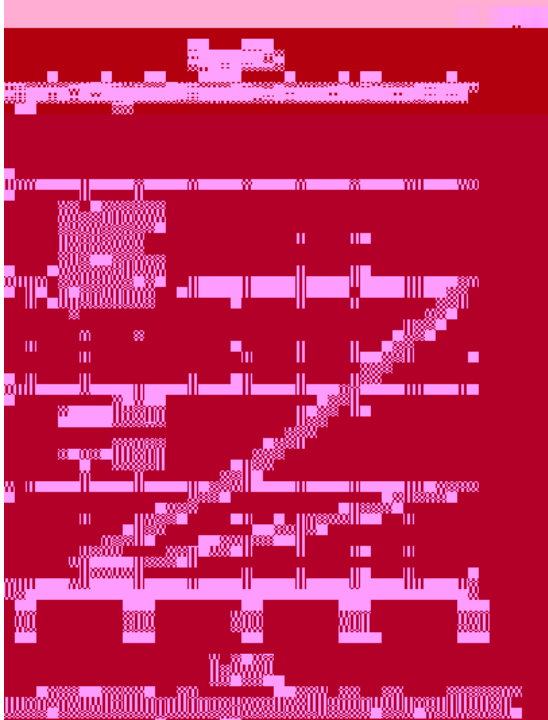
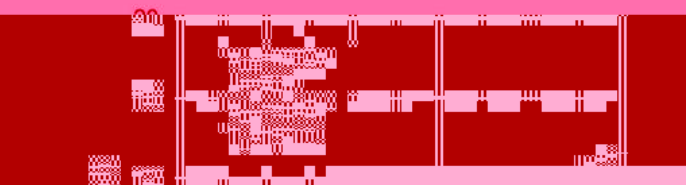
Typical Performance Characteristics



Figure_1. Typical Output Characteristics IGBT



Figure_2. Typical Output Characteristics IGBT



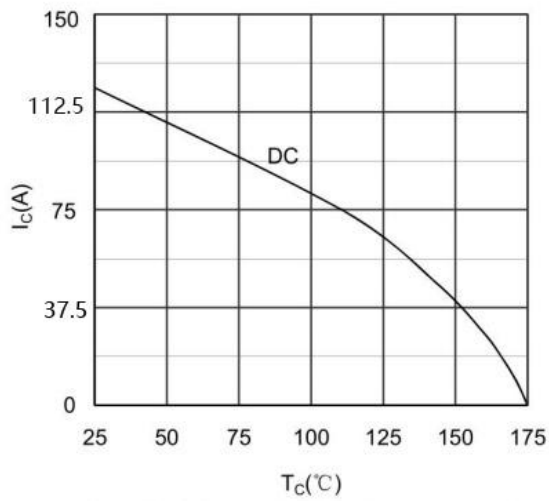


Figure 7. Collector Current vs Case temperature IGBT

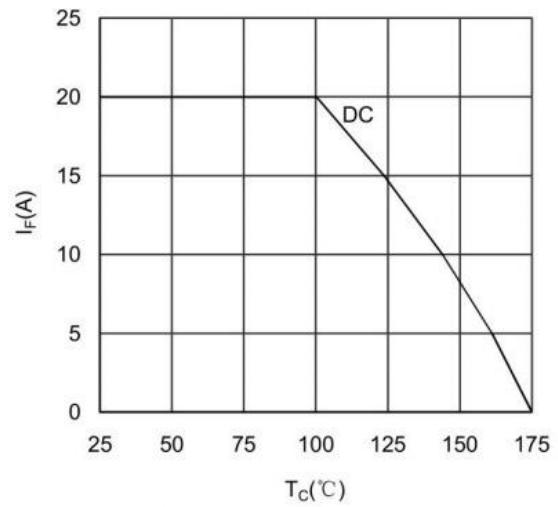


Figure 8. Forward current vs Case temperature Diode

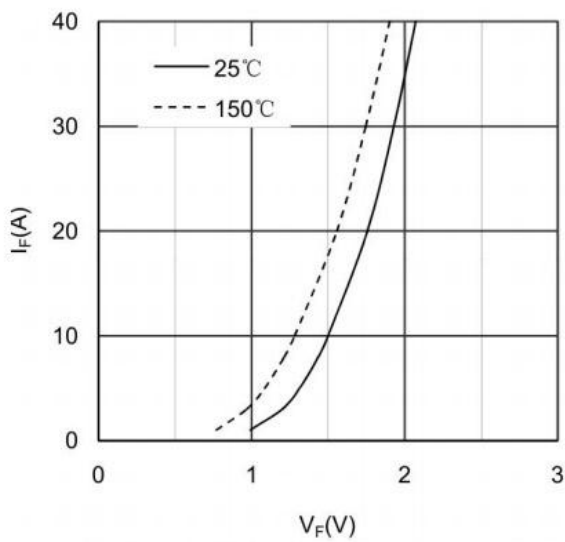


Figure 9. Diode Forward Characteristics Diode

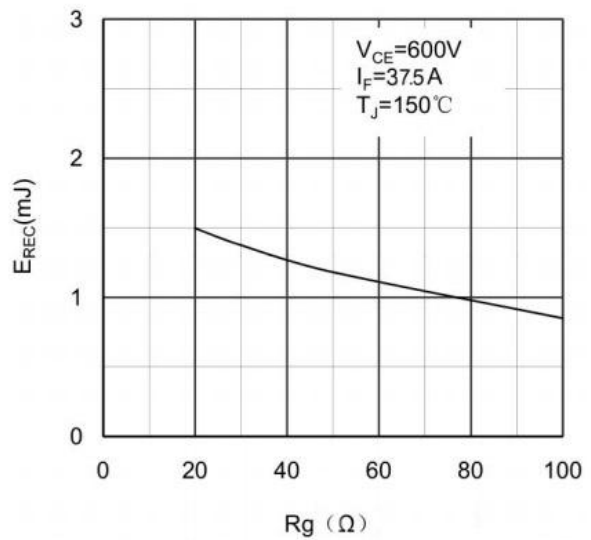
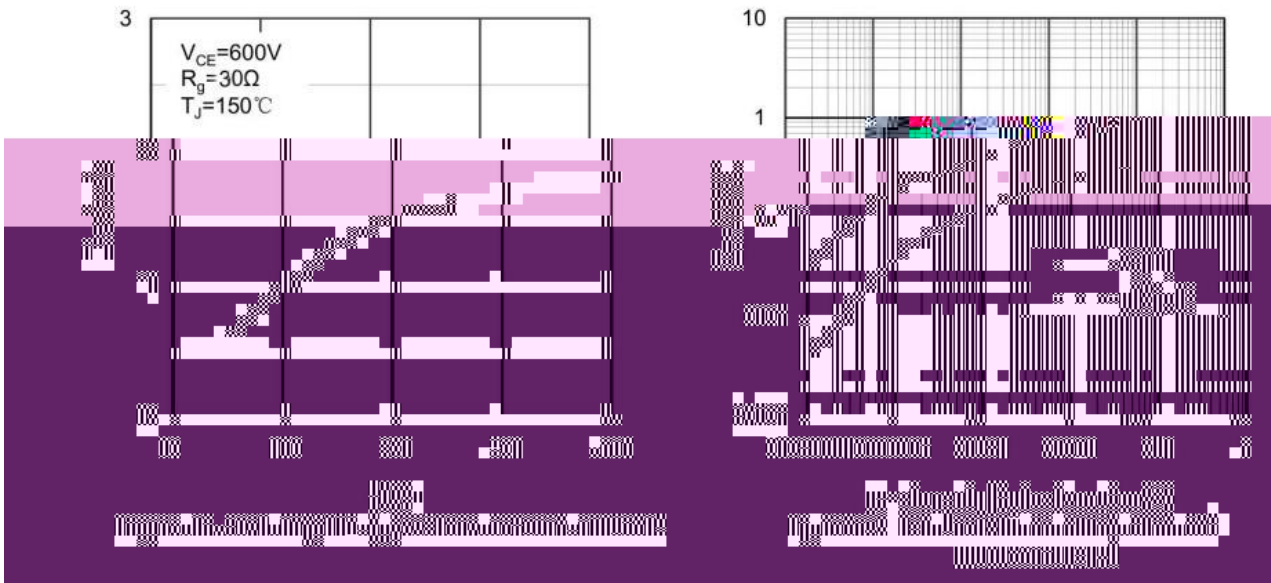


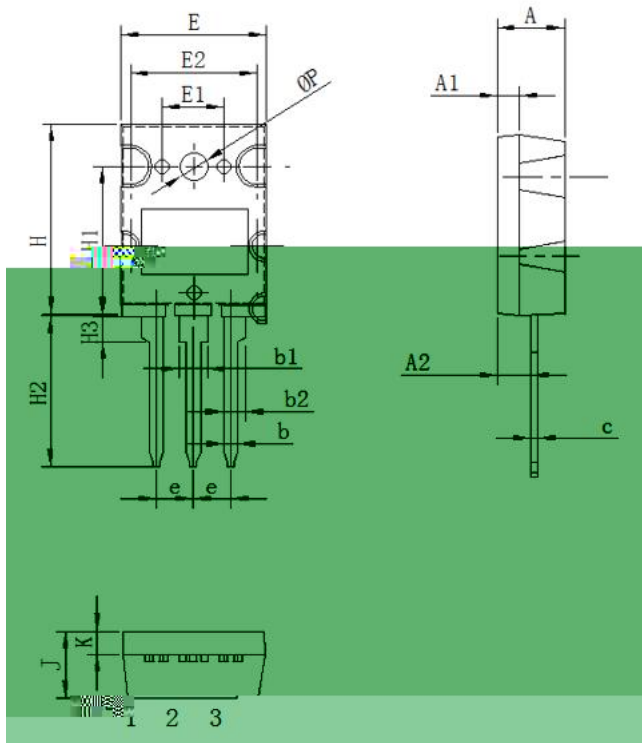
Figure 10. Switching Energy vs Gate Resistor Diode



Package Information

TO-264 PACKAGE

基本尺寸



Symbol	单位 mm		
	Min	Nom	Max
A	4.80	5.00	5.20
A1	1.80	2.00	2.20
A2	3.20	3.40	3.60
b	0.80	1.00	1.20
b1	2.90	3.10	3.30
b2	2.40	2.60	2.80
c	0.50	0.60	0.70
e	5.25	5.45	5.65
E	19.8	20.0	20.2
E1	17.6	17.8	18.0
E2	8.60	8.80	9.00
H	25.8	26.0	26.2
H1	19.8	20.0	20.2
H2	19.8	20.3	20.8
H3	2.00	2.50	3.00
G	6.00	6.20	6.40
ΦP	3.00	3.20	3.40
J	4.80	5.00	5.20
K	1.30	1.50	1.70

Notice

-Headquarters