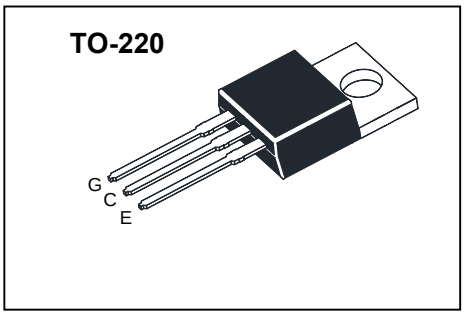
H08T60
Insulated Gate Bipolar Transistor

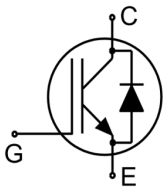
Features

- Very low VCE（sat）
- High speed switching
- Very tight parameter distribution
- High ruggedness, temperature stable behavior



Applications

- Air Condition
- Inverters
- Motor drives



Schematic diagram

Absolute Maximum Ratings（Tj= 25℃ unless otherwise specified）:

Symbol	Parameter	Rating	Units
V_{CES}	Collector-Emitter Voltage	600	V
V_{GES}	Gate- Emitter Voltage	±20	V
I_C	Collector Current@TC=25℃	16	A
	Collector Current @TC = 100 ℃	8	
I_{CM}[a1]	Pulsed Collector Current	32	A
I_F	Diode Continuous Forward Current @T_C = 25 ℃	20	A
	Diode Continuous Forward Current @T_C = 100 ℃	10	A
I_{FM}	Diode Maximum Forward Current	30	A
P_D	Power Dissipation @ T_C = 25 ℃	104	W
T_J	Operating Junction	−55～150	℃
T_{stg}	Storage Temperature Range	−55～150	℃
T_L	Maximum Temperature for Soldering	260	℃

[a1]: Repetitive rating; pulse width limited by maximum junction temperature

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction to case for IGBT	--	1.19	℃/W
$R_{\theta JC}$	Thermal Resistance, Junction to case for Diode	--	1.23	℃/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	--	43.18	℃/W

Electrical Characteristics of the IGBT（T_j= 25℃ unless otherwise specified）:

Symbol	Parameter	Test Conditions	Min	Typ.	Max.	Units
OFF Characteristics						
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	V_{GE}=0V,I_{CE}=250uA	600	--	--	V
I_{CES}	Collector-Emitter Leakage Current	V_{GE}=0V,V_{CE}=600V	--	--	150	μA
$I_{GES(F)}$	Gate to Emitter Forward Leakage	V_{GE}=+20V	--	--	+100	nA
$I_{GES(R)}$	Gate to Source Reverse Leakage	V_{GE} =-20V	--	--	-100	nA
ON Characteristics						
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C=8A ,V_{GE}=15V	--	1.6	2.2	V
$V_{GE(th)}$	Gate Threshold Voltage	I_C=250u A ,V_{CE}=V_{GE}	4.4	5.4	6.2	V
Pulse width tp≤300μs,δ≤2%						
Dynamic Characteristics						
C_{ies}	Input Capacitance	V_{CE}=25V,V_{GE}=0V f=1MHz	--	611	--	pF
C_{oes}	Output Capacitance		--	40	--	
C_{res}	Reverse Transfer Capacitance		--	9	--	
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{CE}=400V,I_C=8A, R_g=10Ω,V_{GE}=15V, Inductive Load, T_J=25℃,	--	7	--	ns
t_r	Rise Time		--	23	--	
$t_{d(off)}$	Turn-Off Delay Time		--	48	--	
t_f	Fall Time		--	79	--	
E_{on}	Turn-On Switching Loss		--	0.15	--	mJ
E_{off}	Turn-Off Switching Loss		--	0.17	--	
E_{ts}	Total Switching Loss		--	0.32	--	
Q_g	Total Gate Charge	V_{CE}=480V,I_C=8A, V_{GE}=15V,	--	44	--	nC
Electrical Characteristics of the DIODE（T_j= 25℃ unless otherwise specified）:						
V_F	Diode Forward Voltage	I_F=8A	--	2.0	2.6	V
t_{rr}	Reverse Recovery Time	I_F=10A di/dt=100A/uS	--	47	--	ns
I_{rrm}	Reverse Recovery Current		--	7.5	--	A
Q_{rr}	Reverse Recovery Charge		--	176	--	nC

Typical Performance Characteristics

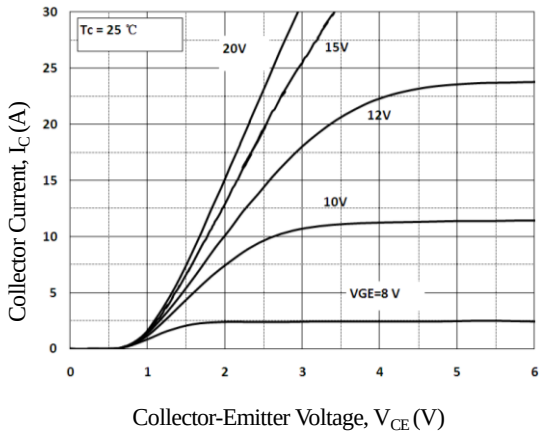


Figure 1.Output Characteristics

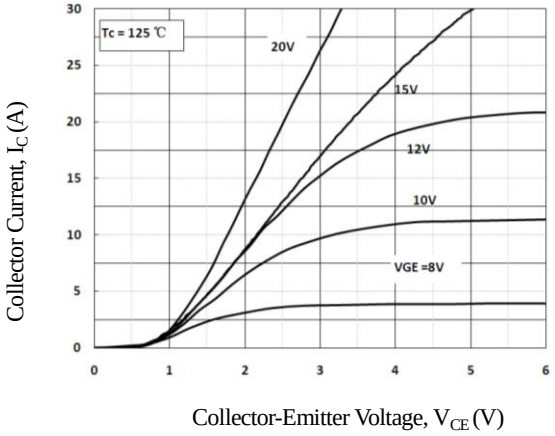


Figure 2.Output Characteristics

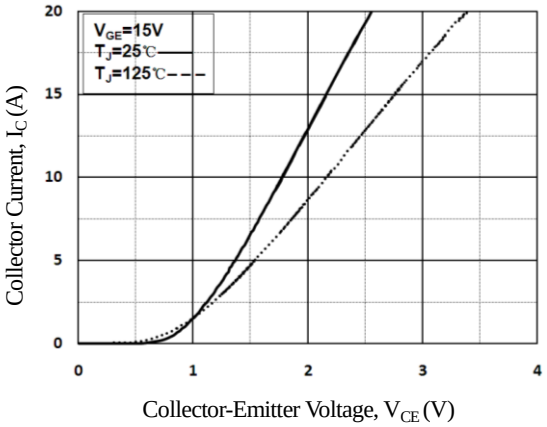


Figure 3.Saturation Voltage Characteristics

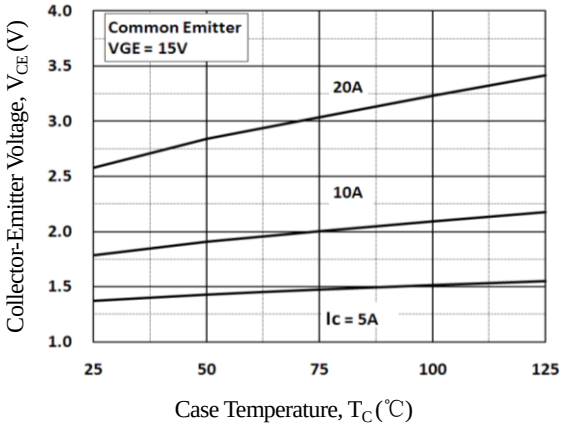


Figure 4.Saturation Voltage –T_C Characteristics

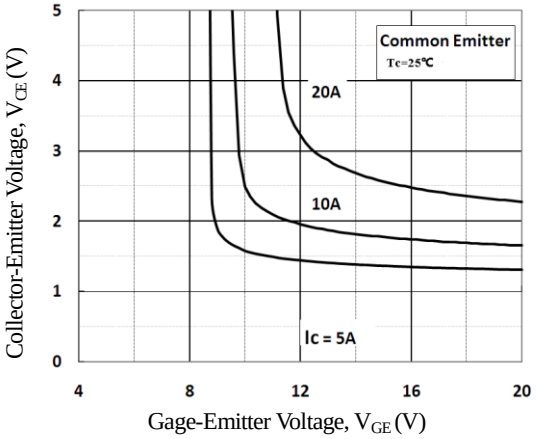


Figure 5.$V_{CE(sat)}$— V_{GE} Characteristics

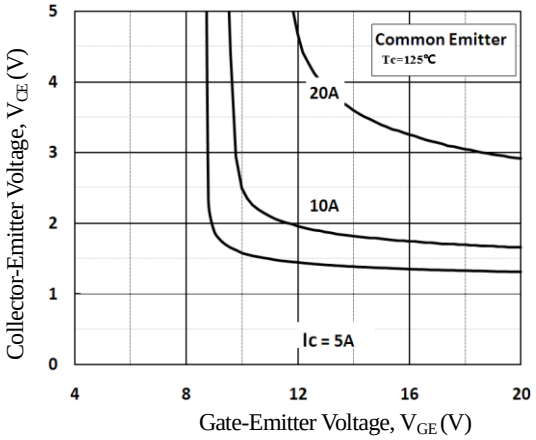


Figure 6.$V_{CE(sat)}$— V_{GE} Characteristics

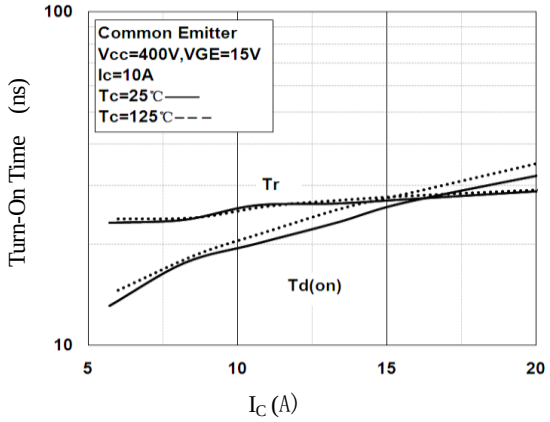


Figure 7. Turn-On Time-Ic Characteristics

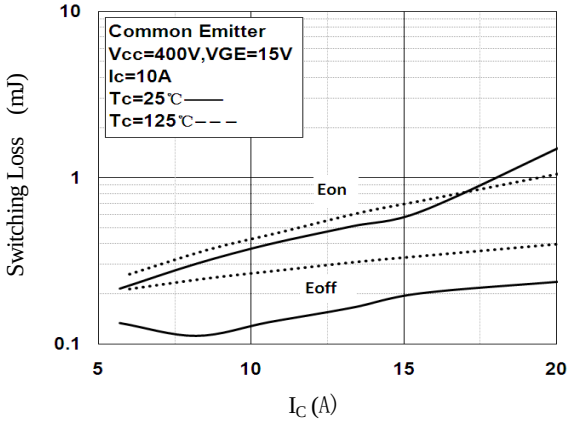


Figure 8.Switching Loss-Ic Characteristics

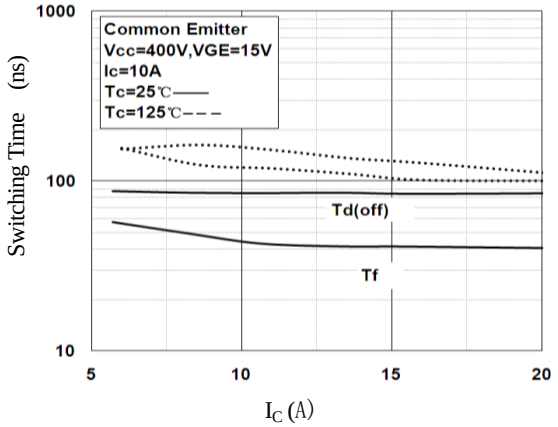


Figure 9. Turn-Off Time-Ic Characteristics

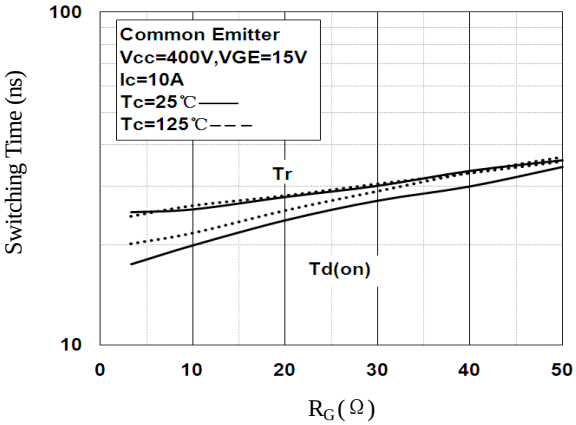


Figure 10.Switching Time-RG Characteristics

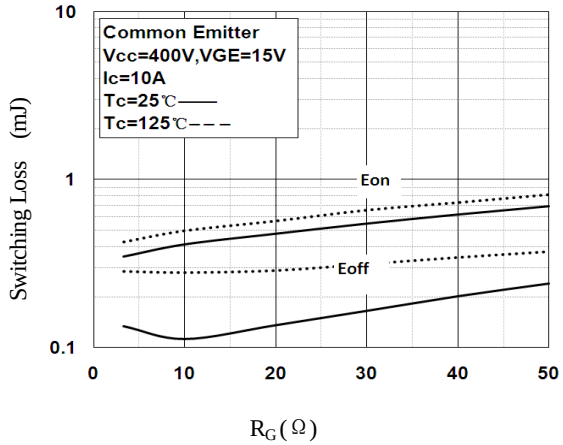


Figure 11.Switching Loss- R_G Characteristics

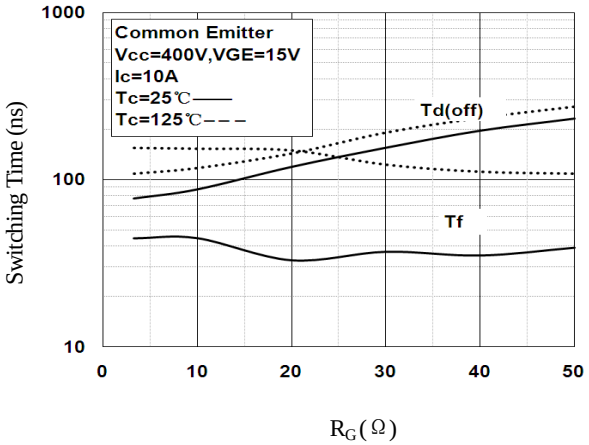


Figure 12.Switching Time-R_G Characteristics

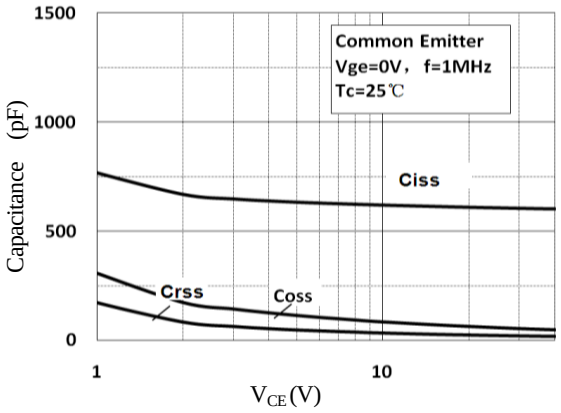


Figure 13.Capacitance Characteristics

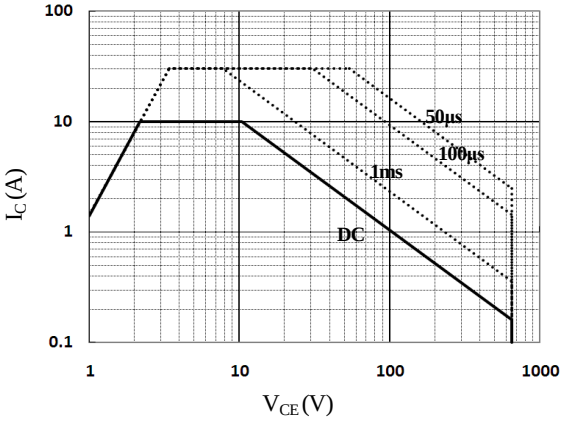


Figure 14.Forward Bias Safe Operating Area

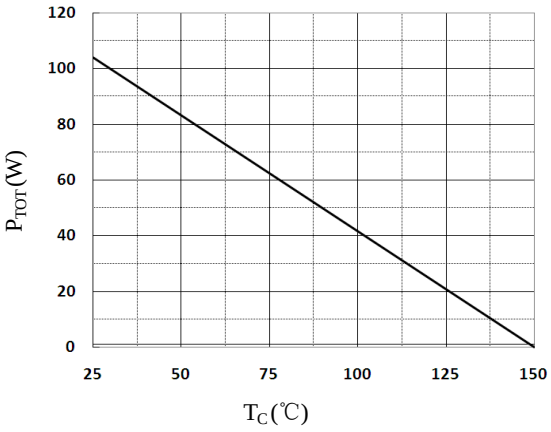


Figure 15.Power Dissipation-T_C Characteristics

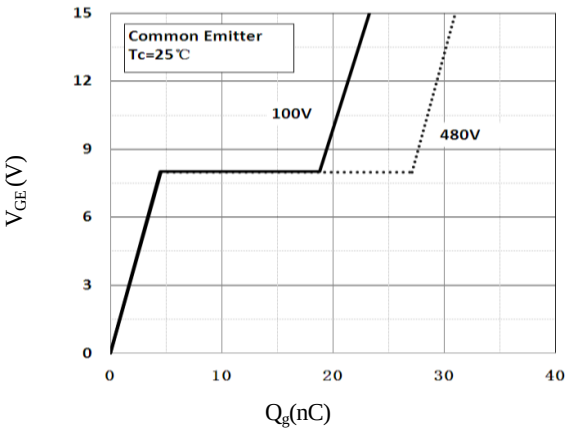


Figure 16.Gage Charge Characteristics

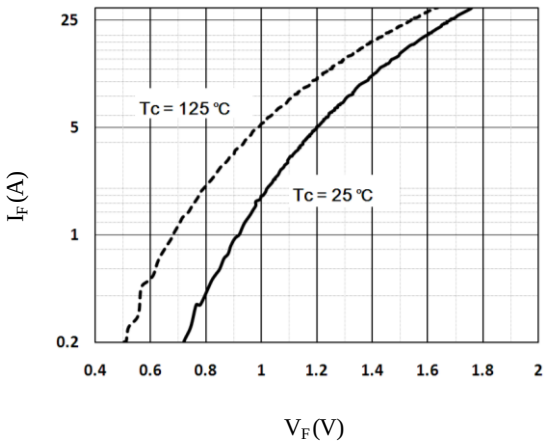


Figure 17.Diode Forward Characteristics

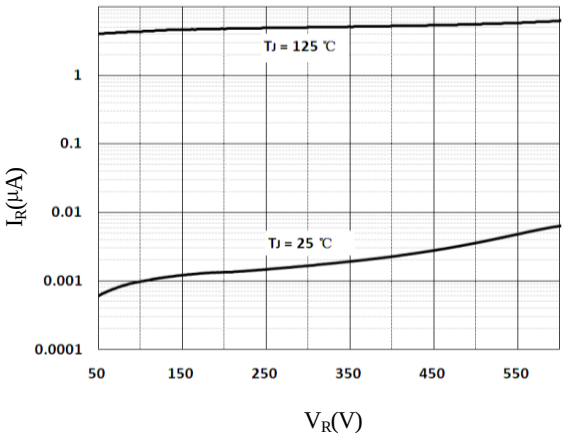
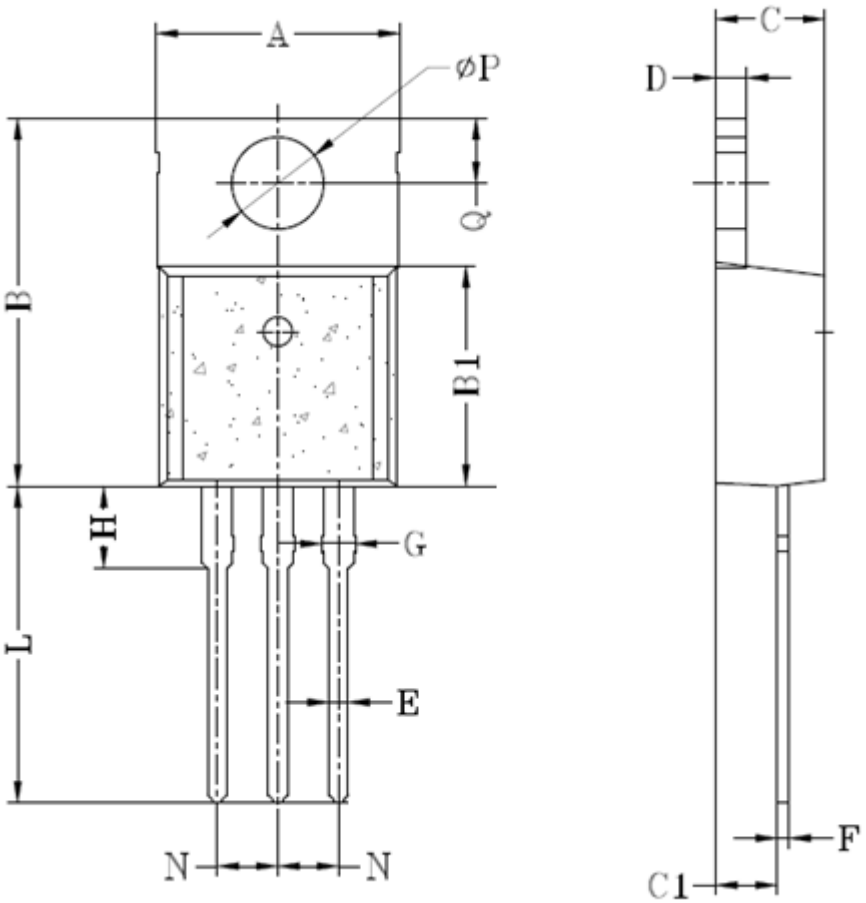


Figure 18. Diode Reverse Characteristics

Package Information



Symbol	unit(mm)	
	MIN	MAX
A	10.0	10.4
B	15.2	15.6
B1	9.00	9.60
C	4.47	4.67
C1	2.28	2.88
D	1.20	1.40
E	0.70	0.90
F	0.40	0.60
G	1.27	1.47
H	3.20	3.70
L	12.95	13.55
N	2.34	2.74
Q	2.44	3.04
ΦP	3.74	3.94

TO-220