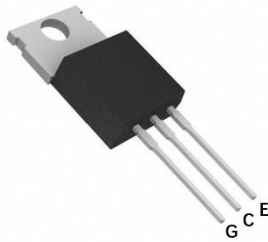


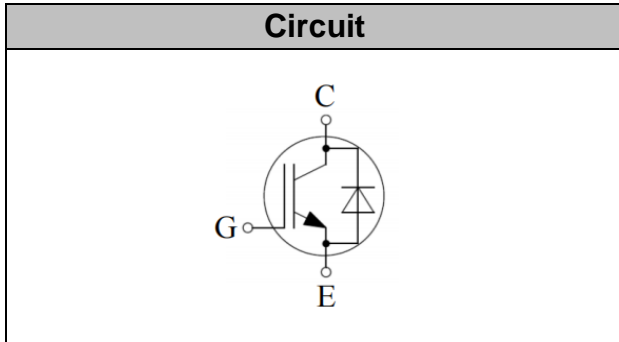


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## IGBT Discrete



$V_{CE}$	<b>650</b>	<b>V</b>
$I_C$	<b>10</b>	<b>A</b>
$V_{CE(SAT)} I_C=10A$	<b>1.40</b>	<b>V</b>



### Applications

Soft switching applications  
Air conditioning  
Motor drive inverter

### Features

High speed smooth switching device for hard & soft switching  
Maximum junction temperature 175  
Positive temperature coefficient  
High ruggedness, temperature stable

## Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter Breakdown Voltage	$V_{CE}$	650	V
DC Collector Current, limited by $T_{jmax}$ $T_C=25^\circ C$ $T_C=100^\circ C$	$I_C$	20 10	A
Diode Forward Current, limited by $T_{jmax}$ $T_C=25^\circ C$ $T_C=100^\circ C$	$I_F$	20 10	A
Continuous Gate-Emitter Voltage	$V_{GE}$	20	V
Transient Gate-Emitter Voltage ( $t_p=10\mu s, D<0.010$ )	$V_{GE}$	30	V
Turn off Safe Operating Area $V_{CE}=600V,$ $T_j$		40	A
Pulsed Collector Current, $V_{GE}=15V,$ $t_p$ limited by $T_{jmax}$	$I_{CM}$	40	A
Short Circuit Withstand Time, $V_{GE}=15V,$	$T_{sc}$	5	
Diode Pulsed Current, $t_p$ limited by $T_{jmax}$	$I_{Fpuls}$	40	A
Power Dissipation, $T_j=175^\circ C, T_c=25^\circ C$	$P_{tot}$	100	W



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## Electrical Characteristics of the IGBT $T_j=25$ unless otherwise specified

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Static</b>						
Collector-Emitter Breakdown Voltage	$BV_{CES}$	$V_{GE}=0V, I_C$	650		-	V
Gate Threshold Voltage	$V_{GE(th)}$	$V_{GE}=V_{CE}, I_C=1mA$	4.4	5.2	6.0	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$V_{GE}=15V, I_C=10A$ $T_j=25^\circ C,$ $T_j=125^\circ C$ $T_j=150^\circ C$		1.40 1.55 1.60	1.70	V
Zero Gate Voltage Collector Current	$I_{CES}$	$V_{CE}=650V, V_{GE}=0V$ $T_j=25^\circ C,$ $T_j=150^\circ C$			0.25 1.00	mA
Gate-Emitter Leakage Current	$I_{GES}$	$V_{CE}=0V, V_{GE}=\pm 20V$			$\pm 200$	nA

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Dynamic</b>						
Input Capacitance	$C_{ies}$	$V_{CE}=25V, V_{GE}=0V,$ $f=1MHz$	-	0.89	-	nF
Output capacitance	$C_{oes}$		-	0.04	-	
Reverse Transfer Capacitance	$C_{res}$		-	0.01	-	
Gate Charge	$Q_G$	$V_{CC}=300V, I_C=10A,$ $V_{GE}=15V$	-	0.059	-	$\mu C$

Short circuit collector current  $I_{C\ sc}$   $V_{GE}=15V, t_{SD} \leq 5$



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## Electrical Characteristics of the Diode $T_j = 25$ unless otherwise specified

Parameter	Symbol	Conditions	Min.
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## Electrical Characteristics of the DIODE

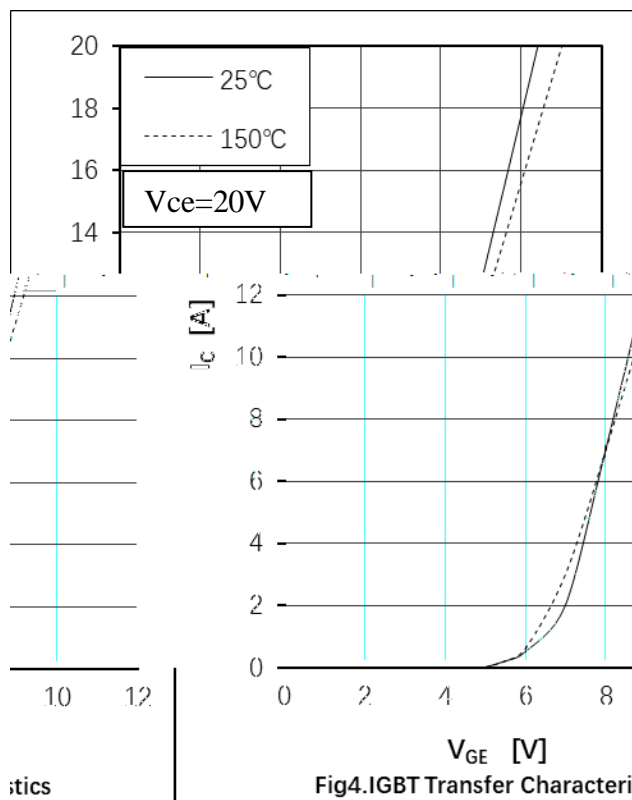
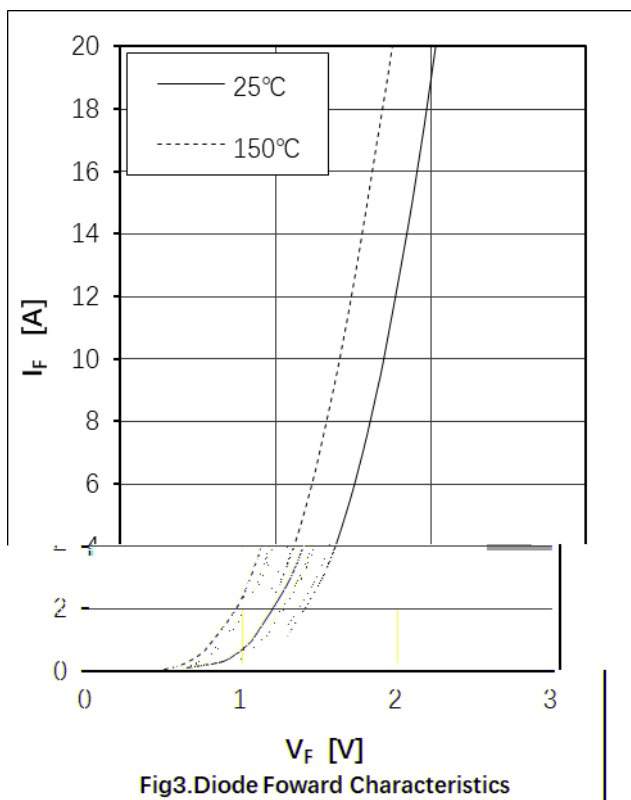
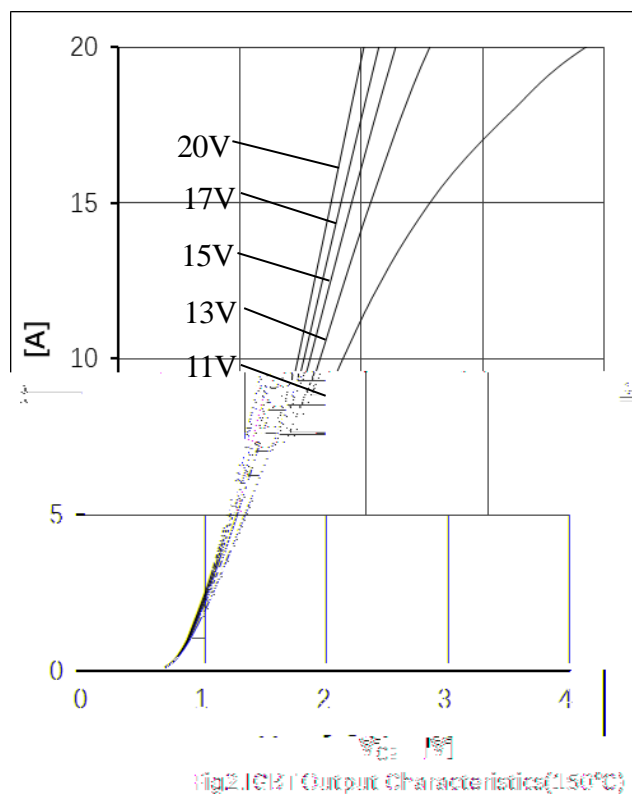
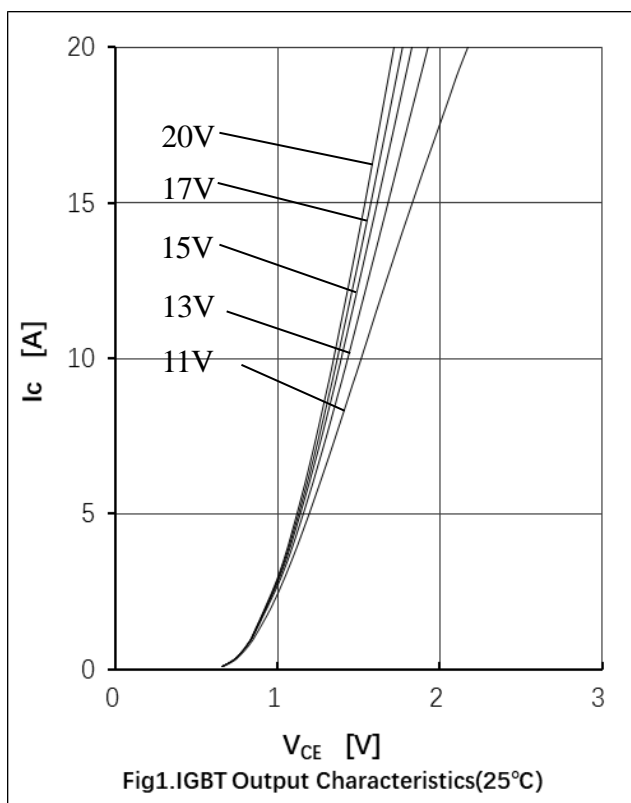
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Dynamic , at T<sub>j</sub>= 25</b>						
Reverse Recovery Current	I <sub>rr</sub>	I <sub>F</sub> =10A V <sub>R</sub> =300V, -di/dt= 365	-	6	-	A
Diode reverse recovery time	trr		-	176	-	ns
Reverse Recovery Charge	Q <sub>rr</sub>		-	0.12	-	uC
Reverse Recovery Energy	E <sub>rec</sub>		-	0.05	-	mJ
<b>Dynamic , at T<sub>j</sub>= 125</b>						
Reverse Recovery Current	I <sub>rr</sub>	I <sub>F</sub> =10A V <sub>R</sub> =300V, -di/dt= 365	-	7	-	A
Diode reverse recovery time	trr		-	189	-	ns
Reverse Recovery Charge	Q <sub>rr</sub>		-	0.48	-	uC
Reverse Recovery Energy	E <sub>rec</sub>		-	0.09	-	mJ
<b>Dynamic , at T<sub>j</sub>= 150</b>						
Reverse Recovery Current	I <sub>rr</sub>	I <sub>F</sub> =10A V <sub>R</sub> =300V, -di/dt= 365	-	8	-	A
Diode reverse recovery time	trr		-	195	-	ns
Reverse Recovery Charge	Q <sub>rr</sub>		-	0.62	-	uC
Reverse Recovery Energy	E <sub>rec</sub>		-	0.11	-	mJ

## Thermal Resistance

Parameter	Symbol	Max. Value	Unit
IGBT Thermal Resistance, Junction - Case	R <sub>th(j-c)</sub>	1.5	K/W
Diode Thermal Resistance, Junction - Case	R <sub>th(j-c)</sub>	2.0	K/W
Thermal Resistance, Junction - Ambient	R <sub>th(j-a)</sub>	60	K/W

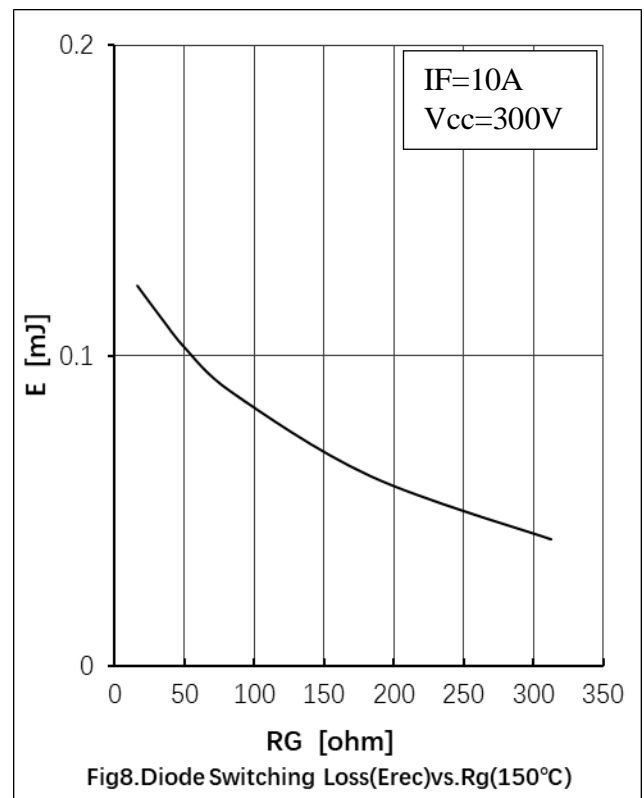
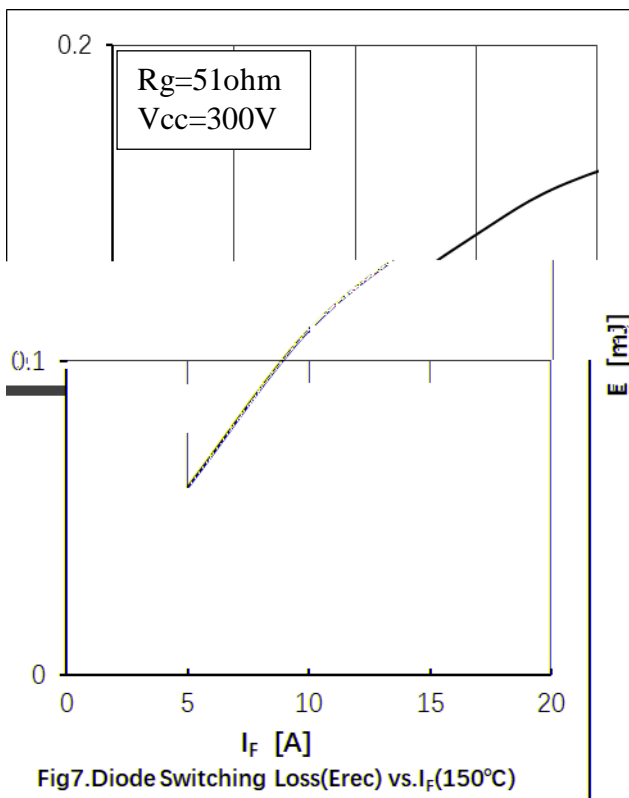
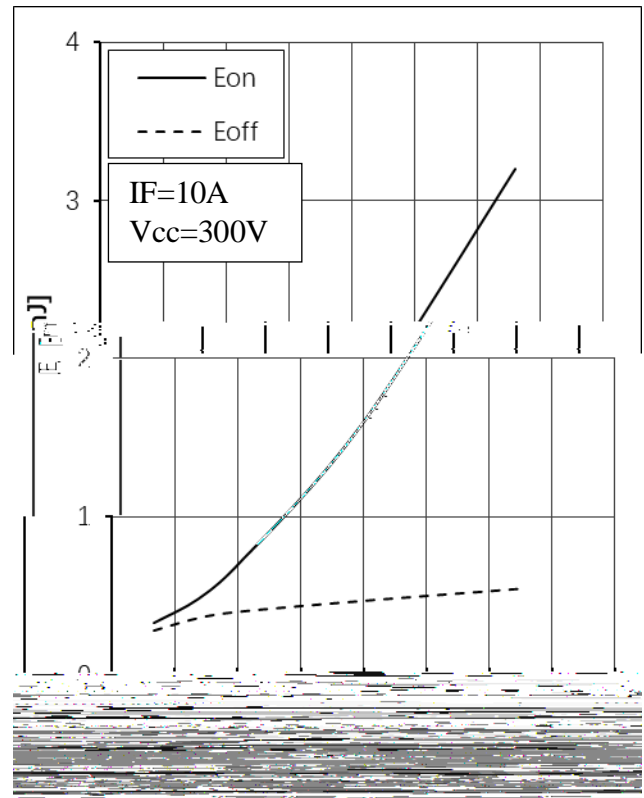
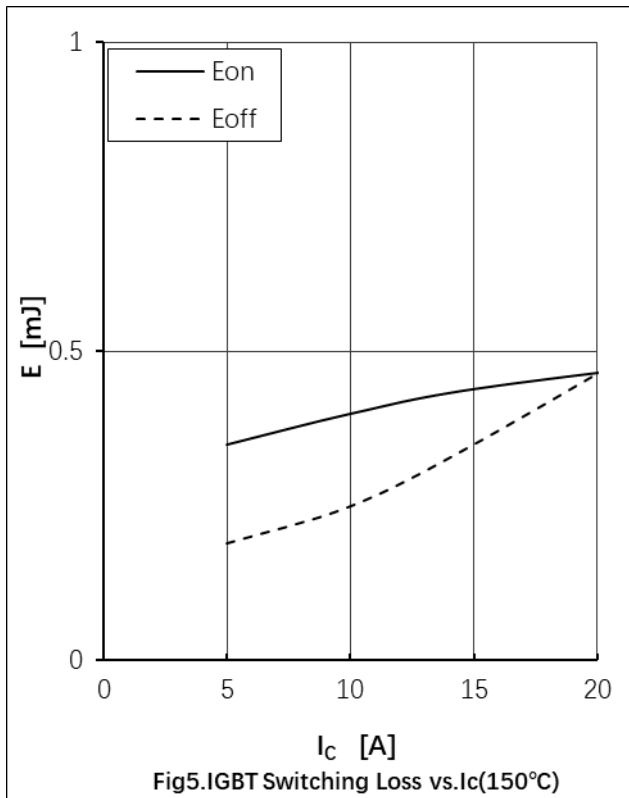


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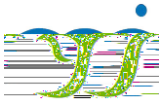




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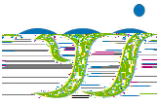






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