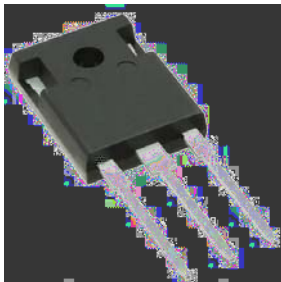


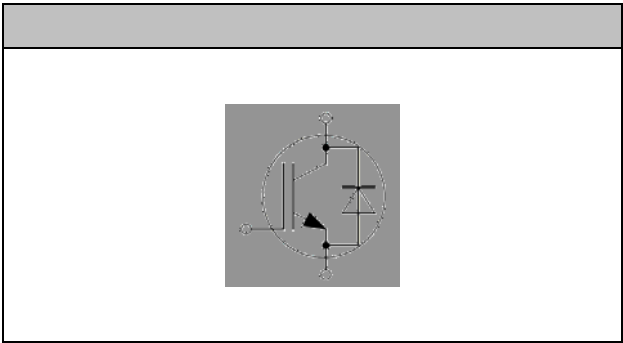


DGW10N120CTL

RoHS
COMPLIANT



V_{CE}	1200	V
I_C	10	A
$V_{CE(SAT)} I_C=10A$	1.85	V



Inverter for motor drive
AC and DC servo drive amplifier
Uninterruptible power supply

Including fast & soft recovery anti-parallel FWD
High short circuit capability(10us)

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-Emitter Breakdown Voltage	V_{CE}	1200	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	V_{GE}	± 30	V
Turn off Safe Operating Area $V_{CE}\hat{O}1200V$, $T_j\hat{O} 150^{\circ}C$		40	A
Pulsed Collector Current, $V_{GE}=15V$, tp limited by T_{jmax}	I_{CM}	40	A
Diode Pulsed Current, tp limited by T_{jmax}	I_{Fpuls}	40	A

Short Circuit Withstand Time,
 $V_{GE}= 15V$, $V_{CC}=900V$ $V_{CEM} \leq$

Positive temperature coefficient



Operating Junction Temperature	T_j	-40...+175	°C
Storage Temperature	T_s	-55...+150	°C
Soldering Temperature, wave soldering 1.6mm (0.063in.) from case for 10s		260	°C

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static						
Collector-Emitter Breakdown Voltage	BV_{CES}	$V_{GE}=0V, I_C=250mA$	1200		-	V
Gate Threshold Voltage	$V_{GE(th)}$	$V_{GE}=V_{CE}, I_C=500mA$	5.0	5.8	6.6	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$V_{GE}=15V, I_C=10A$ $T_j=25^{\circ}C,$ $T_j=125^{\circ}C$ $T_j=150^{\circ}C$		1.85 2.15 2.25	2.20	V
Zero Gate Voltage Collector Current	I_{CES}	$V_{CE}=1200V, V_{GE}=0V$ $T_j=25^{\circ}C,$ $T_j=150^{\circ}C$			0.25 5.00	mA
Gate-Emitter Leakage Current	I_{GES}	$V_{CE}=0V, V_{GE}=0 \text{ to } 20V$			400	nA

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Dynamic						
Input Capacitance	C_{ies}	$V_{CE}=25V, V_{GE}=0V,$ $f=1MHz$	-	0.75	-	nF
Reverse Transfer Capacitance	C_{res}		-	0.035	-	
Gate Charge	Q_G	$V_{CC}=960V, I_C=10A,$ $V_{GE}=15V$	-	0.08	-	uC
Short Circuit Collector Current	I_{SC}	$V_{GE}=15V, t_{sc} \leq 10\mu s,$ $V_{CC}=900V, T_j \leq 150^{\circ}C$	-	50	-	A



DGW10N120CTL



Electrical Characteristics of the DIODE

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Dynamic , at T _j = 25						
Reverse Recovery Current	I _{rr}	I _F =10A, V _R =600V, -di/dt=500A/μs,	-	12.5	-	A
Reverse Recovery Charge	Q _{rr}		-	0.9	-	uC
Reverse Recovery Energy	E _{rec}		-	0.25		mJ
Dynamic , at T _j = 125						
Reverse Recovery Current	I _{rr}	I _F =10A, V _R =600V, -di/dt=500A/μs,	-	14.4	-	A
Reverse Recovery Charge	Q _{rr}		-	1.7	-	uC
Reverse Recovery Energy	E _{rec}		-	0.5		mJ
Dynamic , at T _j = 150						
Reverse Recovery Current	I _{rr}	I _F =10A, V _R =600V, -di/dt=500A/μs,	-	15.3	-	A
Reverse Recovery Charge	Q _{rr}		-	2.0	-	uC
Reverse Recovery Energy	E _{rec}		-	0.58		mJ

Thermal Resistance

Parameter	Symbol	Max. Value	Unit
IGBT Thermal Resistance, Junction - Case	R _{th(j-c)}	0.95	K/W
Diode Thermal Resistance, Junction - Case	R _{th(j-c)}	1.70	K/W
Thermal Resistance, Junction - Ambient	R _{th(j-a)}	40	K/W



DGW10N120CTL

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—— $T_{vj}=25$
----- $T_{vj}=125$

$V_{GE}=15V$

—— $T_{vj}=25$
----- $T_{vj}=125$

$V_{CE}=20V$

—— E_{on}
----- E_{off}

$V_{CC}=600V$
 $R_G=47\Omega$
 $V_{GE}=15V$
 $T_{vj}=125$

—— E_{on}
----- E_{off}

$V_{CC}=600V$
 $I_C=10A$
 $V_{GE}=15V$
 $T_{vj}=125$



DGW10N120CTL

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$I_{C, \text{ Module}}$

$R_G=47\text{ohm}$
 $V_{GE}=15\text{V}$
 $T_{vj}=125$

i:	1	2	3	4
ri[K/W]	0.3754	0.2311	0.2614	0.0870
ti[s]	0.1100	0.0156	0.00135	0.000151

—— $T_{vj}=25$
..... $T_{vj}=125$

$V_{CC}=600\text{V}$
 $R_G=47\text{ohm}$
 $V_{GE}=15\text{V}$
 $T_{vj}=125$



$V_{CC}=600V$
 $I_F=10A$
 $V_{GE}=15V$
 $T_{vj}=125$

i:	1	2	3	4
ri[K/W]	0.1624	0.2719	0.2605	0.1565
E i[s]	0.0723	0.00813	0.00109	0.000155



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