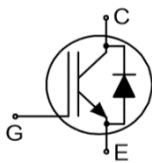
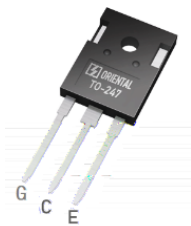


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Parameter	Value	Unit
$V_{CES, \min}$ @ 25 °C	600	V
Maximum junction temperature	175	°C
$I_C, \text{ pulse}$	270	A
$V_{CE(\text{sat}), \text{ typ}}$ @ $V_{GE}=15 \text{ V}$	1.65	V
Q_g	198	nC

Product Name	Package	Marking
OST90N60HCZF	TO247	OST90N60HCZ



Absolute Maximum Ratings at $T_{vj}=25$ unless otherwise noted

Parameter	Symbol	Value	Unit
Collector emitter voltage	V_{CES}	600	V
Gate emitter voltage	V_{GES}	± 20	V
Transient gate emitter voltage, $T_P \leq 10 \mu s, D < 0.01$		± 30	V
Continuous collector current ¹⁾ , $T_C=25 \text{ }^\circ\text{C}$	I_C	180	A
Continuous collector current ¹⁾ , $T_C=100 \text{ }^\circ\text{C}$		90	A
Pulsed collector current ²⁾ , $T_C=25 \text{ }^\circ\text{C}$	$I_{C, pulse}$	270	A
Diode forward current ¹⁾ , $T_C=25 \text{ }^\circ\text{C}$	I_F	180	A
Diode forward current ¹⁾ , $T_C=100 \text{ }^\circ\text{C}$		90	A
Diode pulsed current ²⁾ , $T_C=25 \text{ }^\circ\text{C}$	$I_{F, pulse}$	270	A
Power dissipation ³⁾ , $T_C=25 \text{ }^\circ\text{C}$	P_D	180	W
Power dissipation ³⁾ , $T_C=100 \text{ }^\circ\text{C}$		135	W
Operation and storage temperature	T_{stg}, T_{vj}	-55 to 175	$^\circ\text{C}$
Short circuit withstand time $V_{GE}=15 \text{ V}, V_{CC} 400 \text{ V}$ Allowed number of short circuits < 1000 Time between short circuits: 1.0 S $T_{vj}=150 \text{ }^\circ\text{C}$	t_{sc}	10	s

Thermal Characteristics

Parameter	Symbol	Value	Unit
IGBT thermal resistance, junction-case	R	0.83	$^\circ\text{C}/\text{W}$
Diode thermal resistance, junction-case	R	0.94	$^\circ\text{C}/\text{W}$
Thermal resistance, junction-ambient ⁴⁾	R	65	$^\circ\text{C}/\text{W}$

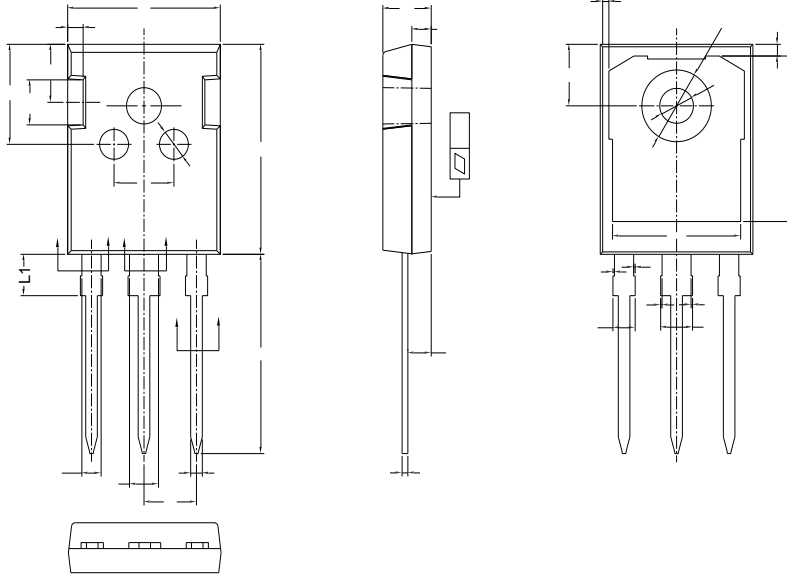
Electrical Characteristics at $T_{vj}=25$ unless otherwise specified

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Collector-emitter breakdown voltage	$V_{(BR)CES}$	600			V	$V_{GE}=0$ V, $I_C=0.5$ mA
Collector-emitter saturation voltage	$V_{CE(sat)}$		1.65	2.1	V	$V_{GE}=15$ V, $I_C=90$ A $T_{vj}=25$ °C
			1.85		V	$V_{GE}=15$ V, $I_C=90$ A, $T_{vj}=125$ °C
			1.95			$V_{GE}=15$ V, $I_C=90$ A, $T_{vj}=175$ °C
Gate-emitter threshold voltage	$V_{GE(th)}$	3.0	3.8	4.5	V	$V_{CE}=V_{GE}$, $I_D=1$ mA
Diode forward voltage	V_F		1.16	1.25	V	$V_{GE}=0$ V, $I_F=90$ A $T_{vj}=25$ °C
			1.08			$V_{GE}=0$ V, $I_F=90$ A, $T_{vj}=125$ °C
			1.04			$V_{GE}=0$ V, $I_F=90$ A, $T_{vj}=175$ °C
Gate-emitter leakage current	I_{GES}			100	nA	$V_{CE}=0$ V, $V_{GE}=20$ V
Zero gate voltage collector current	I_{CES}			10		$V_{CE}=650$ V, $V_{GE}=0$ V

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{ies}		9730		pF	$V_{GE}=0\text{ V}$, $V_{CE}=25\text{ V}$, 100 kHz
Output capacitance	C_{oes}		5620		pF	
Reverse transfer capacitance	C_{res}		37.5		pF	

Package Information



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
a	0.00	-	0.15
a'	0.00	-	0.15
b	1.16	-	1.26
b2	1.96	-	2.06
b4	2.96	-	3.06
b6	-	-	2.25
b7	-	-	3.25
c	0.59	-	0.66
c1	0.58	0.60	0.62
D	20.90	21.00	21.10
D1	16.25	16.55	16.85
D2	1.05	1.17	1.35
E	15.70	15.80	15.90
E1	13.10	13.30	13.50
E2	4.40	4.50	4.60
E3	1.50	1.60	1.70
e	5.436 BSC		
L	19.80	19.92	20.10
L1	-	-	4.30
M	0.35	-	0.95
P	3.40	3.50	3.60
P1	7.00	-	7.40
P2	2.40	2.5	2.6
Q	5.60	-	6.0
S	6.05	6.15	6.25
T	9.8	-	10.20
U	6.00	-	6.40

Version 1: TO247-J package outline dimension

Ordering Information

Package Type	Units/ Tube	Tubes/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO247-J	30	20	600	5	3000

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OST90N60HCZF	TO247	yes	yes	yes