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Parameter	Value	Unit
$V_{CES, min}$ @ 25 °C	650	V
Maximum junction temperature	175	°C
$I_{C, pulse}$	45	A
$V_{CE(sat), typ}$ @ V_{GE}=15 V	1.65	V

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

Parameter	Symbol	Value	Unit
Collector emitter voltage	V_{CES}	650	V
Gate emitter voltage	V_{GES}	±20	V
Transient gate emitter voltage, T_P µs, D<0.01		±30	V
Continuous collector current[1], T_C=25 °C	I_C	30	A
Continuous collector current[1], T_C=100 °C		15	A
Pulsed collector current[2], T_C=25 °C	$I_{C,\ pulse}$	45	A
Diode forward current[1], T_C=25 °C	I_F	30	A
Diode forward current[1], T_C=100 °C		15	A
Diode pulsed current[2], T_C=25 °C	$I_{F,\ pulse}$	45	A
Power dissipation[3], T_C=25 °C	P_D	250	W
Operation and storage temperature	T_{stg}, T_{vj}	-55 to 175	°C
Short circuit withstand time V_{GE}=15 V, V_{CC} 400 V Allowed number of short circuits<1000 Time between short circuits:≥1.0 S T_{vj}=150 °C	t_{SC}	10	s

Thermal Characteristics

Parameter	Symbol	Value	Unit
IGBT thermal resistance, junction-case	R	0.6	°C/W
Diode thermal resistance, junction-case	R	2.0	°C/W
Thermal resistance, junction-ambient[4]	R	75	°C/W

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Collector-emitter breakdown voltage	$V_{(BR)CES}$	650			V	V_{GE}=0 V, I_C=0.5 mA
Collector-emitter saturation voltage	$V_{CE(sat)}$		1.65	2.0	V	V_{GE}=15 V, I_C=15 A T_{vj}=25 °C
			1.8		V	V_{GE}=15 V, I_C=15 A, T_{vj}=125 °C
			1.9			V_{GE}=15 V, I_C=15 A, T_{vj}=175 °C
Gate-emitter threshold voltage	$V_{GE(th)}$	4.4	5.2	6.0	V	V_{CE}=V_{GE}, I_D=0.5 mA
Diode forward voltage	V_F		1.65	2.0	V	V_{GE}=0 V, I_F=15 A T_{vj}=25 °C
			1.8			V_{GE}=0 V, I_F=15 A,

Dynamic Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Input capacitance	C_{ies}		2015		pF	V_{GE}=0 V, V_{CE}=25 V, 100 kHz
Output capacitance	C_{oes}		80		pF	
Reverse transfer capacitance	C_{res}		41		pF	
Turn-on delay time	$t_{d(on)}$		50		ns	V_{GE}=15 V, V_{CC}=400 V, R_G=10 I_C=15 A
Rise time	t_r		36		ns	
Turn-off delay time	$t_{d(off)}$		143		ns	
Fall time	t_f		94		ns	
Turn-on energy	E_{on}		0.62			

Electrical Characteristics Diagrams

Figure 1. Typical output characteristics (T_{vj}=25 °C)	**Figure 2. Typical output characteristics** (T_{vj}=150 °C)
Figure 3. Typical transfer characteristics (V_{CE}=20 V)	**Figure 4. Typical capacitance** (V_{GE}=0V, =100 kHz)
Figure 5. Typical gate charge	**Figure 6. Gate-emitter threshold voltage**

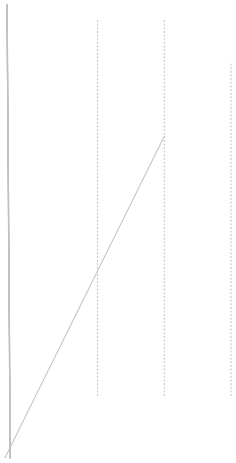


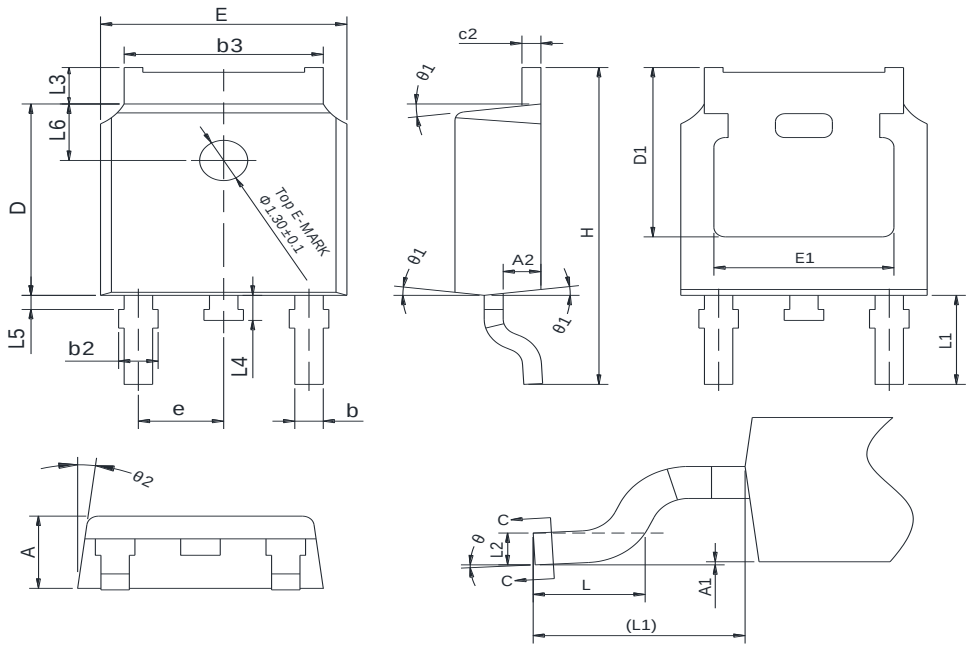
Figure 7. Typical collector-emitter voltage

Figure 8. Forward characteristic of diode

Figure 9. IGBT transient thermal impedance

Figure 10. Diode transient thermal impedance

Package Information



Symbol	mm		
	Min	Nom	Max
A	2.20	2.30	2.38
A1	0.00	-	0.10
A2	0.90	1.01	1.10
b	0.72	-	0.85
b1	0.71	0.76	0.81
b2	0.72	-	0.90
b3	5.13	5.33	5.46
c	0.47	-	0.60
c1	0.46	0.51	0.56
c2	0.47	-	0.60
D	6.00	6.10	6.20
D1	5.25	-	-
E	6.50	6.60	6.70
E1	4.70	-	-
e	2.186	2.286	2.386
H	9.80	10.10	10.40
L	1.40	1.50	1.70
L1	2.90 REF		
L2	0.508 BSC		
L3	0.90	-	1.25
L4	0.60	0.80	1.00
L5	0.15	-	0.75
L6	1.80 REF		
	0	-	

Version 1: TO252-J package outline dimension

Ordering Information

Package Type	Units/ Reel	Reels/ Inner Box	Units/ Inner Box	Inner Boxes/ Carton Box	Units/ Carton Box
TO252-J	2500	2	5000	5	25000

Product Information

Product	Package	Pb Free	RoHS	Halogen Free
OST15N65DRF	TO252	yes	yes	yes

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