

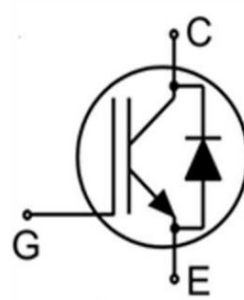
Trench Field-Stop Technology IGBT

FEATURES

- Low Saturation Voltage: $V_{CE(sat)}=1.35V@I_C=40A$
- Low Turn-off Losses
- Short Tail Current

APPLICATIONS

- Synchronous Rectification in SMPS
- Energy Generation
- UPS, PFC
- Solar Optimizer



ABSOLUTE MAXIMUM RATINGS

SYMBOL	PARAMETER	VALUE	UNIT
V_{CES}	Collector-Emitter Voltage	650	V
V_{GES}	Gate-Emitter Voltage	± 20	V
I_C	Collector Current-Continuous @ $T_C=25^\circ C$	76	A
I_C	Collector Current-Continuous @ $T_C=100^\circ C$	50	A
I_{CM}	Pulsed Collector Current	120	A
I_F	Diode Forward Current @ $T_C=25^\circ C$	72	A
	Diode Forward Current @ $T_C=100^\circ C$	44	
I_{FM}	Pulsed forward current	120	A
P_D	Power Dissipation @ $T_C=25^\circ C$	230	W
T_J	Operating Junction Temperature	-40~175	$^\circ C$
T_{stg}	Storage Temperature Range	-40~175	$^\circ C$



ISG2246
eq IKW40N65ET7

Trench Field-Stop Technology IGBT

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case IGBT	0.38	$^{\circ}C/W$

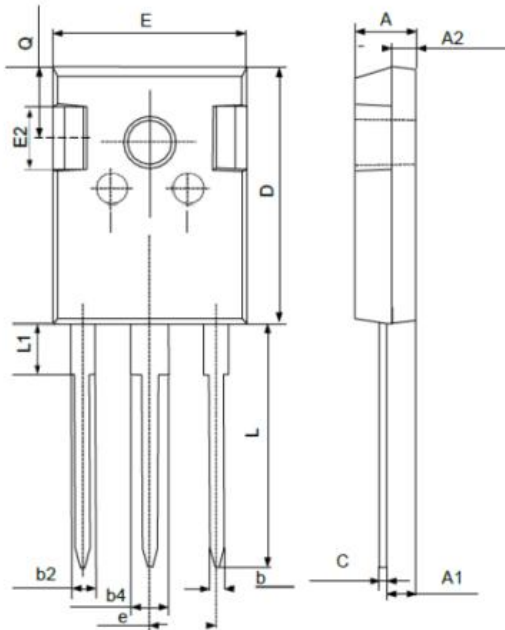
STATIC CHARACTERISTICS ($T_J = 25^{\circ}C$ unless otherwise specified)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYPE	MAX	UNIT
V_{CES}	Collector-Emitter Breakdown Voltage	$V_{GE}=0, I_C=1mA$	650	--	--	V
$V_{GE(th)}$	Gate-Emitter Threshold Voltage	$V_{GE}=V_{CE}, I_C=0.4mA$	4.3	5.0	5.7	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=40A, V_{CE}=15V, T_C=25^{\circ}C$	--	1.35	1.65	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=40A, V_{CE}=15V, T_C=125^{\circ}C$	--	1.5	--	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=40A, V_{CE}=15V, T_C=175^{\circ}C$	--	1.6	--	V
I_{CES}	Zero Gate Voltage Collector Current	$V_{CE}=650V, V_{GE}=0$	--	--	40	μA
I_{GES}	Gate-Emitter Leakage Current	$V_{GE}=\pm 20V, V_{CE}=0$	--	--	± 100	nA

REVERSE DIODE (FRED)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYPE	MAX	UNIT
V_F	Diode Forward Voltage	$I_F=40A, T_J=25^{\circ}C$	--	1.65	2	V
		$I_F=40A, T_J=125^{\circ}C$	--	1.6	--	V
		$I_F=40A, T_J=175^{\circ}C$	--	1.55	--	V

PACKAGE OUTLINE (UNIT: mm)



SYMBOL	MIN	NOM	MAX
A	4.80	5.00	5.20
A1	2.21	2.41	2.59
A2	1.85	2.00	2.15
b	1.11	---	1.36
b2	1.91	---	2.25
b4	2.91	---	3.25
c	0.51	---	0.75
D	20.80	21.00	21.30
E	15.50	15.80	16.10
E2	4.40	5.00	5.20
e	5.44 BSC		
L	19.72	19.92	20.22
L1	---	---	4.30
Q	5.60	5.80	6.00

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