

DESCRIPTION

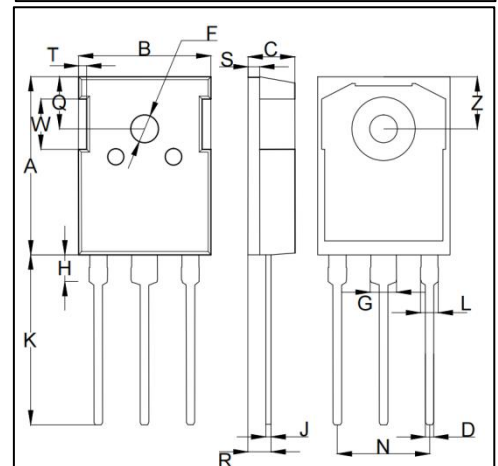
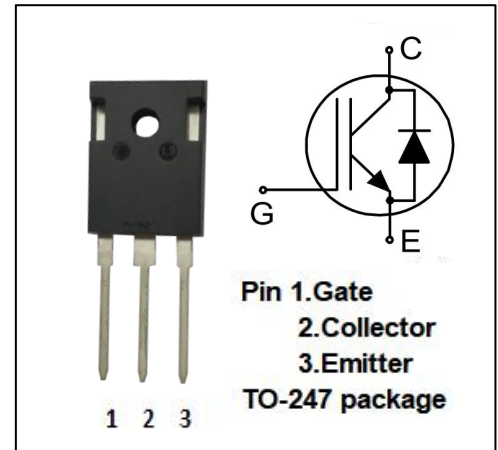
- Low Saturation Voltage: $V_{CE(sat)}=2.4V@I_C= 60A$
- High Current Capability
- High Input Impedance
- Fast Switching

APPLICATIONS

- Induction Heating, UPS
- AC & DC motor controls and general purpose inverters

ABSOLUTE MAXIMUM RATINGS

SYMBOL	PARAMETER	VALUE	UNIT
V_{CES}	Collector-Emitter Voltage	600	V
V_{GES}	Gate-Emitter Voltage	± 20	V
I_C	Collector Current-Continuous @ $T_C=25^\circ C$	120	A
I_C	Collector Current-Continuous @ $T_C=100^\circ C$	60	A
I_{CM}	Pulsed Collector Current@ $T_C=25^\circ C$	180	A
P_D	Power Dissipation , $T_C=25^\circ C$	298	W
P_D	Power Dissipation , $T_C=100^\circ C$	119	W
T_j	Max. Operating Junction Temperature	-55~150	$^\circ C$
T_{stg}	Storage Temperature Range	-55~150	$^\circ C$



DIM	mm		
	MIN	TYP.	MAX
A	19.80	20.65	21.50
B	15.40	15.65	15.90
C	4.70	5.00	5.30
D	0.90	1.08	1.26
F	3.50	3.70	3.90
G	2.70	3.00	3.30
H	3.90	4.00	4.10
J	0.50	0.60	0.70
K	19.50	20.00	20.50
L	1.90	2.05	2.20
N	10.80	10.90	11.00
Q	6.00	6.15	6.30
R	2.90	3.10	3.30
S	1.80	2.00	2.20
T	2.15	2.25	2.35
W	4.90	5.00	5.10
Z	6.00	6.15	6.30



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eq FGH60N60UFD

Field Stop IGBT

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case IGBT	0.33	$^{\circ}C/W$
$R_{th\ j-c}$	Thermal Resistance, Junction to Case DIODE	1.1	$^{\circ}C/W$
$R_{th\ j-c}$	Thermal Resistance, Junction to Ambient	40	$^{\circ}C/W$

ELECTRICAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	MIN	TYPE	MAX	UNIT
V_{CES}	Collector-Emitter Breakdown Voltage	$V_{GE}=0$; $I_C=0.25mA$	600	--	--	V
$V_{GE(TH)}$	Gate-Emitter Threshold Voltage	$V_{GE}=V_{CE}$; $I_C=0.25mA$	4.0	5.0	6.5	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=60A$; $V_{CE}=15V$	--	1.9	2.4	V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=60A$; $V_{CE}=15V$, $T_C=125^{\circ}C$	--	2.1	--	V
I_{CES}	Zero Gate Voltage Collector Current	$V_{CE}=1200V$; $V_{GE}=0$	--	--	250	μA
I_{GES}	Gate-Emitter Leakage Current	$V_{GE}=\pm 20V$; $V_{CE}=0$	--	--	± 400	nA
C_{ies}	Input Capacitance	$V_{GS}=0V$, $V_{CS}=25V$, $f=1.0MHz$	--	1537	--	pF
C_{oes}	Output Capacitance		--	165	--	
C_{res}	Reverse Transfer Capacitance		--	48.8	--	
Q_g	Total Gate Charge	$V_{GE}=15V$, $I_C=60A$, $V_{CE}=520V$	--	98	--	nC
Q_{GE}	Gate-Emitter Charge		--	15.6	--	
Q_{GC}	Gate-Collector Charge		--	56	--	



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SYMBOL	PARAMETER	CONDITIONS	MIN	TYPE	MAX	UNIT
$t_{d(on)}$	Turn-on Delay Time	$V_{GE} = 15V,$ $I_C = 60A,$ $V_{CC} = 400V,$ $R_G = 20\Omega$ $T_C = 25^\circ C$	--	23	--	ns
t_r	Turn-on Rise Time		--	76	--	ns
$t_{d(off)}$	Turn-off Delay Time		--	229	--	ns
t_f	Turn-off Fall Time		--	110	--	ns
E_{on}	Turn-on switching losses		--	0.7	--	mJ
E_{off}	Turn-off switching losses		--	1.08	--	mJ
E_{ts}	Total switching losses		--	1.78	--	mJ

REVERSE DIODE (FRED)

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
V_F	Diode Forward Voltage	$I_F = 60A; T_C = 25^\circ C$	--	1.5	2.2	V
t_{rr}	Reverse Recovery Time	$I_F = 60A,$ $V_R = 400V,$ $di/dt = 350A/\mu s,$ $T_C = 25^\circ C$	--	152.2	--	ns
Q_{rr}	Reverse recovery charge		--	12.5	--	nC
I_{rrm}	Reverse recovery current		--	700	--	A

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