

General Description

KEC Field Stop Trench IGBTs offer low switching losses, high energy efficiency and short circuit ruggedness.

It is designed for applications such as motor control, uninterrupted power supplies(UPS), general inverters.

FEATURES

- High speed switching
- High ruggedness, temperature stable behavior
- Short Circuit Withstand Times 10us
- Extremely enhanced avalanche capability

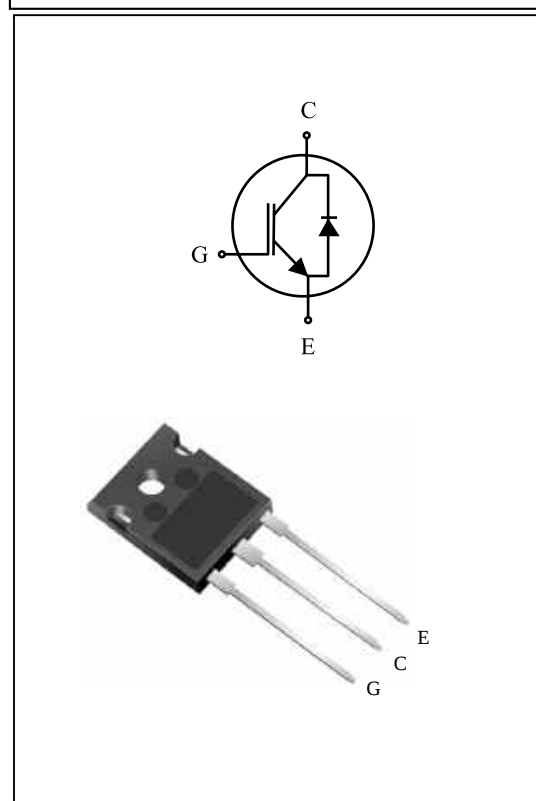
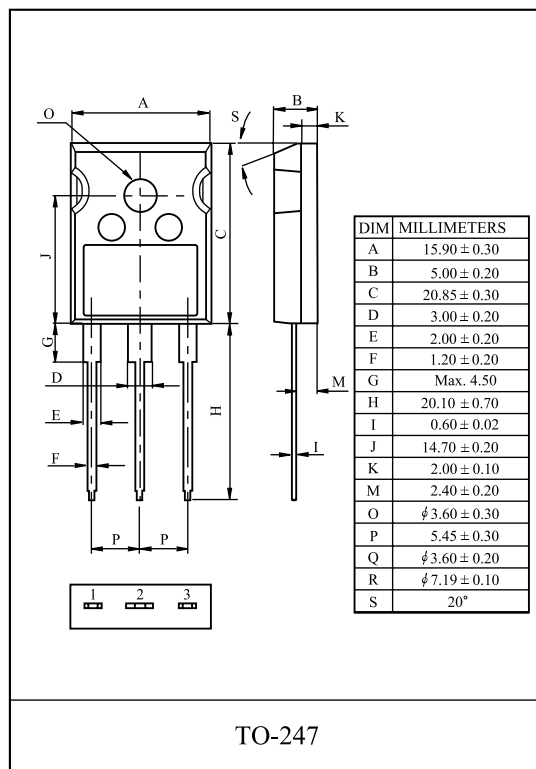
MAXIMUM RATING (Ta=25 °C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Emitter Voltage		V_{CES}	600	V
Gate-Emitter Voltage		V_{GES}	± 20	V
Collector Current	@Tc=25	I_C	40	A
	@Tc=100		20	A
Pulsed Collector Current		I_{CM}^*	60	A
Diode Continuous Forward Current	@Tc=100	I_F	40	A
Diode Maximum Forward Current		I_{FM}	60	A
Maximum Power Dissipation	@Tc=25	P_D	156	W
	@Tc=100		62	W
Maximum Junction Temperature		T_j	150	
Storage Temperature Range		T_{stg}	-55 to + 150	

*Repetitive rating : Pulse width limited by max. junction temperature

THERMAL CHARACTERISTIC

CHARACTERISTIC	SYMBOL	MAX.	UNIT
Thermal Resistance, Junction to Case (IGBT)	R_{thJC}	0.8	/W
Thermal Resistance, Junction to Case (DIODE)	R_{thJC}	1.8	/W
Thermal Resistance, Junction to Ambient	R_{thJA}	40	/W



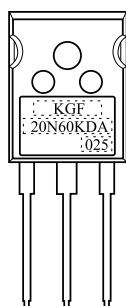
KGF20N60KDA

ELECTRICAL CHARACTERISTICS (Ta=25)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Static						
Collector-Emitter Breakdown Voltage	BV _{CES}	V _{GE} =0V , I _C =250 μA	600	-	-	V
Collector Cut-off Current	I _{CES}	V _{GE} =0V, V _{CE} =600V	-	-	250	μA
Gate Leakage Current	I _{GES}	V _{CE} =0V, V _{GE} = ± 20V	-	-	± 100	nA
Gate Threshold Voltage	V _{GE(th)}	V _{GE} =V _{CE} , I _C =2mA	4.5	5.5	7	V
Collector-Emitter Saturation Voltage	V _{CE(sat)}	V _{GE} =15V, I _C =20A	-	1.7	2.1	V
		V _{GE} =15V, I _C =40A	-	2.3	-	V
		V _{GE} =15V, I _C =20A, T _C = 125	-	1.95	-	V
Dynamic						
Total Gate Charge	Q _g	V _{CC} =300V, V _{GE} =15V, I _C = 20A	-	100	-	nC
Gate-Emitter Charge	Q _{ge}		-	20	-	nC
Gate-Collector Charge	Q _{gc}		-	55	-	nC
Turn-On Delay Time	t _{d(on)}	V _{CC} =300V, I _C =20A, V _{GE} =15V,R _G =10 Ω Inductive Load, T _C = 25 (Note 1)	-	35	-	ns
Rise Time	t _r		-	20	-	ns
Turn-Off Delay Time	t _{d(off)}		-	120	-	ns
Fall Time	t _f		-	30	-	ns
Turn-On Switching Loss	E _{on}		-	0.4	0.55	mJ
Turn-Off Switching Loss	E _{off}		-	0.22	0.35	mJ
Total Switching Loss	E _{ts}		-	0.62	0.9	mJ
Turn-On Delay Time	t _{d(on)}	V _{CC} =300V, I _C =20A, V _{GE} =15V, R _G =10 Ω Inductive Load, T _C = 125 (Note 1)	-	35	-	ns
Rise Time	t _r		-	25	-	ns
Turn-Off Delay Time	t _{d(off)}		-	125	-	ns
Fall Time	t _f		-	50	-	ns
Turn-On Switching Loss	E _{on}		-	0.45	-	mJ
Turn-Off Switching Loss	E _{off}		-	0.35	-	mJ
Total Switching Loss	E _{ts}		-	0.8	-	mJ
Input Capacitance	C _{ies}	V _{CE} =30V, V _{GE} =0V, f=1MHz	-	1700	2210	pF
Ouput Capacitance	C _{oes}		-	100	-	pF
Reverse Transfer Capacitance	C _{res}		-	65	-	pF
Short Circuit Withstand Time	t _{sc}	V _{CC} =300V, V _{GE} =15V, T _C =100	10	-	-	μs

Note 1 : Energy loss include tail current and diode reverse recovery.

Marking



- ① Device Mark 1
- ② Device Mark 2
- ③ Lot No