



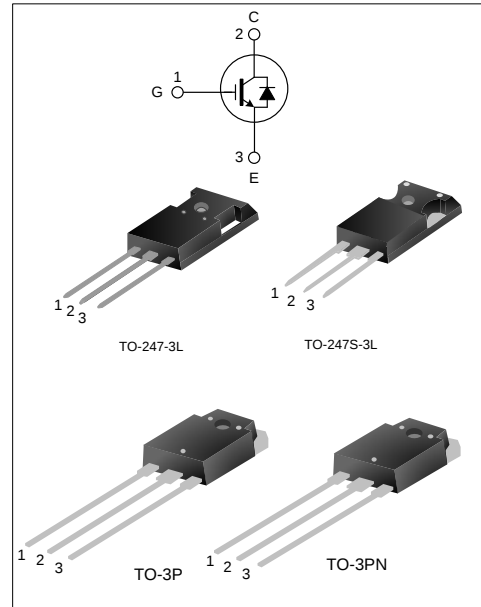
60A, 600V FIELD STOP IGBT

DESCRIPTION

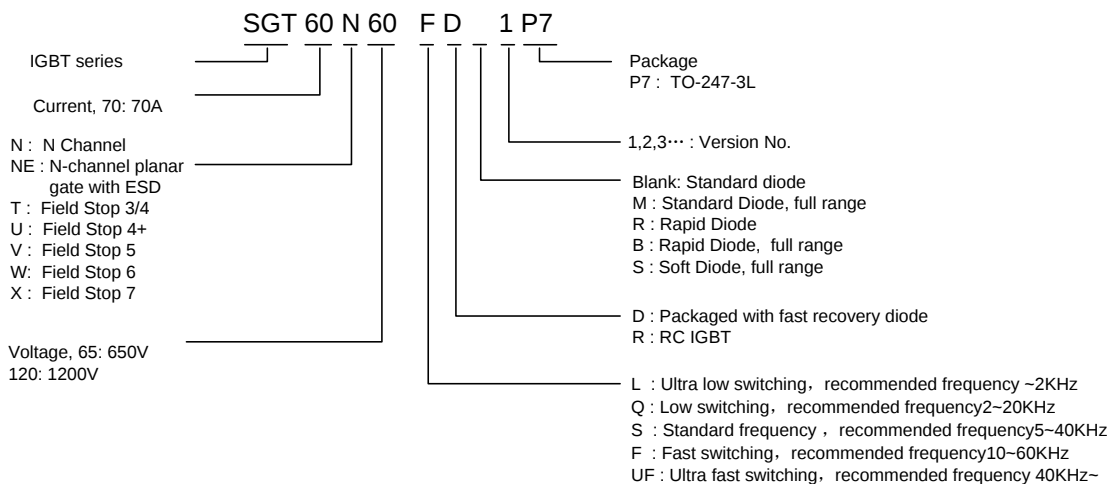
SGT60N60FD1PN/P7/PS/PT adopts Field Stop IGBT technology, offer the optimum performance for induction Heating, UPS, SMPS and PFC application.

FEATURES

- 60A, 600V, $V_{CE(sat)}(typ.)=2.2V@I_C=60A$
- Low conduction loss
- Fast switching
- High input impedance



NOMENCLATURE



ORDERING INFORMATION

Part No.	Package	Marking	Hazardous Substance Control	Packing Type
SGT60N60FD1PN	TO-3P	60N60FD1	Pb free	Tube
SGT60N60FD1P7	TO-247-3L	60N60FD1	Pb free	Tube
SGT60N60FD1PS	TO-247S-3L	60N60D1	Pb free	Tube
SGT60N60FD1PT	TO-3PN	60N60FD1	Pb free	Tube



ABSOLUTE MAXIMUM RATINGS (T_C = 25°C UNLESS OTHERWISE NOTED)

Characteristics	Symbol	Ratings	Units
Collector to Emitter Voltage	V _{CE}	600	V
Gate to Emitter Voltage	V _{GE}	±20	V
Collector Current	I _C	T _C =25°C	A
		T _C =100°C	
Pulsed Collector Current	I _{CM}	180	A
Maximum Power Dissipation (T _C =25°C)	P _D	321	W
Operating Junction Temperature	T _J	-55~+175	°C
Storage Temperature Range	T _{stg}	-55~+175	°C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Ratings	Units
Thermal Resistance, Junction to Case(IGBT)(TO-3P)	R _{θJC}	0.39	°C/W
Thermal Resistance, Junction to Case(FRD)(TO-3P)	R _{θJC}	1.10	°C/W
Thermal Resistance, Junction to Ambient(TO-3P)	R _{θJA}	40	°C/W

ELECTRICAL CHARACTERISTICS OF IGBT(T_C=25°C, UNLESS OTHERWISE NOTED)

Characteristics	Symbol	Test conditions	Min.	Typ.	Max.	Units
Collector to Emitter Breakdown Voltage	BV _{CE}	V _{GE} =0V, I _C =250uA	600	--	--	V
C-E Leakage Current	I _{CES}	V _{CE} =600V, V _{GE} =0V	--	--	200	μA
G-E Leakage Current	I _{GES}	V _{GE} =20V, V _{CE} =0V	--	--	±400	nA
G-E Threshold Voltage	V _{GE(th)}	I _C =250uA, V _{CE} =V _{GE}	4.0	5.0	6.5	V
Collector to Emitter Saturation Voltage	V _{CE(sat)}	I _C =60A, V _{GE} =15V	--	2.2	2.7	V
		I _C =60A, V _{GE} =15V, T _C =125°C	--	2.6	--	V
Input Capacitance	C _{ies}	V _{CE} =30V	--	2850	--	pF
Output Capacitance	C _{oes}	V _{GE} =0V	--	294	--	
Reverse Transfer Capacitance	C _{res}	f=1MHz	--	85	--	
Turn-On Delay Time	T _{d(on)}	V _{CE} =400V I _C =60A R _g =10Ω	--	36	--	ns
Rise Time	T _r		--	142	--	
Turn-Off Delay Time	T _{d(off)}		--	193	--	
Fall Time	T _f		--	136	--	
Turn-On Switching Loss	E _{on}	V _{GE} =15V Inductive Load,	--	3.72	--	mJ
Turn-Off Switching Loss	E _{off}		--	1.77	--	
Total Switching Loss	E _{st}		--	5.49	--	
Total Gate Charge	Q _g	V _{CE} =400V, I _C =60A, V _{GE} =15V	--	179	--	nC
Gate to Emitter Charge	Q _{ge}		--	23	--	
Gate to Collector Charge	Q _{gc}		--	100	--	