



MBQ60T65PES target datasheet

650V Field Stop IGBT

General Description

This IGBT is produced using advanced MagnaChip's Field Stop Trench IGBT Technology, which provides high switching series and excellent quality.

This device is for Inverter & Welder applications.

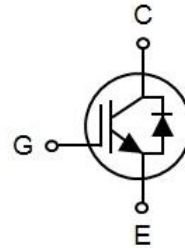
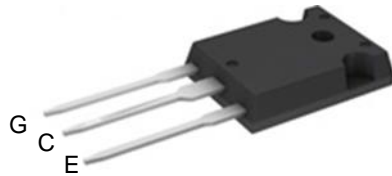
Features

- High Speed Switching & Low Power Loss
- $V_{CE(sat)} = 1.85V @ I_C = 60A$
- $E_{on} = 1.1mJ, E_{off} = 0.5mJ @ T_C = 25^\circ C$
- High Input Impedance
- Maximum junction temperature $175^\circ C$

Applications

- Inverter
- Welder

TO-247



Maximum Rating

Parameter	Symbol	Rating	Unit
Collector-emitter voltage	V_{CE}	650	V
DC collector current, limited by T_{vjmax}	I_C	$T_C=25^\circ C$	120
		$T_C=100^\circ C$	60
Pulsed collector current, t_p limited by T_{vjmax}	I_{Cpuls}	180	A
Diode forward current limited by T_{vjmax}	I_F	$T_C=25^\circ C$	60
		$T_C=100^\circ C$	30
Diode pulsed current, t_p limited by T_{vjmax}	I_{Fpuls}	180	A
Gate-emitter voltage	V_{GE}	± 20	V
Short circuit withstand time $V_{CC} \leq 400V, V_{GE} = 15V, T_{vj} = 150^\circ C$ Allowed number of short circuits < 1000 Time between short circuits $\geq 1.0s$	tsc	5	μs
Operating Junction temperature range	T_{vj}	-40~175	$^\circ C$
Storage temperature range	T_{stg}	-55~150	$^\circ C$

Electrical Characteristic ($T_{vj} = 25^\circ C$ unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static Characteristic						
Collector-emitter breakdown voltage	BV_{CES}	$I_C = 2mA, V_{GE} = 0V$	650	-	-	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 60A, V_{GE} = 15V, T_{vj} = 25^\circ C$		1.85	2.4	V
		$I_C = 60A, V_{GE} = 15V, T_{vj} = 175^\circ C$		2.1		
Diode forward voltage	V_F	$V_{GE} = 0V, I_F = 30A, T_{vj} = 25^\circ C$		1.60	2.05	V
Gate-emitter threshold voltage	$V_{GE(th)}$	$V_{CE} = V_{GE}, I_C = 0.5mA$	3.5	4.5	6.0	V
Zero gate voltage collector current	I_{CES}	$V_{CE} = 650V, V_{GE} = 0V, T_{vj} = 25^\circ C$	-	-	50	μA
Gate-emitter leakage current	I_{GES}	$V_{GE} = 20V, V_{CE} = 0V$	-	-	± 100	nA