

BKZ120N75HZ1

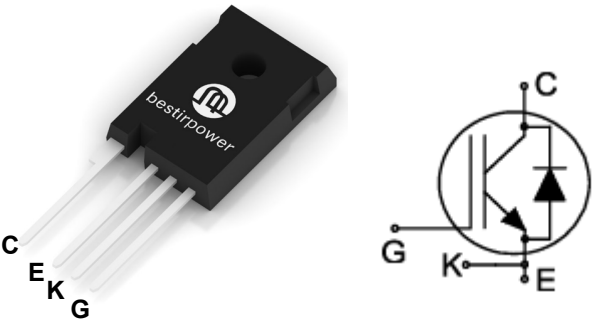
1200V 75A Trench FS IGBT



Description

The BKZ120N75HZ1 is a Trench FS IGBT utilizing bestirpower's advanced technology, which achieves an exceptionally low gate charge. It achieves significantly higher efficiency through optimized gate charge management, while its user-friendly design offers designers advantages such as low EMI and reduced switching losses.

V _{CE}	I _C (T _C = 100°C)	V _{CEsat}	Q _{g,typ}
1200 V	75 A	1.9 V	TBD



Applications

- Uninterruptible Power Supply
- Welding Machines
- Solar Inverters
- PFC

Features

- Low Eoff Trench IGBT Technology
- High Speed Switching Series
- Safe Paralleling
- Square RBSOA
- Very Fast Recovery Antiparallel Diode
- Low Thermal Resistance
- **Absolute Maximum Ratings**



Symbol	Parameter		Value max	Unit	Note
V _{CE}	Collector-emitter voltage (T _{vj} ≥ 25 °C)		1200	V	
V _{GE}	Gate-emitter voltage		±20		
I _C	DC collector current, limited by T _{vjmax}	T _C = 25°C	150	A	
		T _C = 100°C	75		
I _{Cpulse}	Pulsed collector current, t _p limited by T _{vjmax}		300	A	
P _D	Power Dissipation		600	W	
I _F	Diode forward current	T _C = 25°C	150	A	
		T _C = 100°C	75		
T _{SC}	Short circuit withstand time, V _{GE} = 15V, V _{CE} ≤ 400V		5	μs	
T _J	Operating junction temperature		-40~ 175	°C	
T _{STG}	Storage temperature range		-55~ 150	°C	

Thermal Resistance

Symbol	Parameter	Value	Unit
R _{th(j-a)}	Thermal resistance, junction-ambient	40	°C/W
R _{th(j-c)}	Thermal resistance, IGBT junction to case	0.2	
R _{th(j-c)}	Thermal resistance, diodes junction to case	0.3	

Electrical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit	Note
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Statistic Characteristics

$V_{(BR)CES}$	Collector-emitter Breakdown Voltage	$V_{GE}=0V, I_C=1.0mA$		1200	-	-	V	
I_{CES}	Collector Cut-off Current	$V_{CE}=1200V, V_{GE}=0V$		-	-	25	μA	
I_{GES}	Gate-emitter Leakage Current	$V_{GE}=\pm 20V, V_{CE}=0V$		-	-	± 200	nA	
$V_{GE(TH)}$	Gate Threshold Voltage	$V_{CE}=V_{GE}, I_C=1.5mA$		5.0	5.7	6.5	V	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$V_{GE}=15V$ $I_C=75A$	$T_J=25^\circ\text{C}$	-	1.9	2.2	V	
			$T_J=150^\circ\text{C}$	-	TBD	-		

Dynamic Characteristics

C_{ies}	Input Capacitance	$V_{CE}=25V,$ $V_{GE}=0V,$ $f=1MHz$	$T_J=25^\circ\text{C}$	-	TBD	-	nF	
C_{oes}	Output Capacitance			-	TBD	-		
C_{res}	Reverse Transfer Capacitance			-	TBD	-		

Switching Parameters

$t_{d(on)}$	Turn-on Delay Time	$V_{CC}=600V,$ $I_C=75A,$ $R_G=10\Omega,$ $V_{GE}=\pm 15V,$ Inductive Load	$T_J=25^{\circ}C$	-	68	-	ns	
			$T_J=150^{\circ}C$	-	TBD	-		
t_r	Rise Time		$T_J=25^{\circ}C$	-	29	-		
			$T_J=150^{\circ}C$	-	TBD	-		
$t_{d(off)}$	Turn-off Delay Time		$T_J=25^{\circ}C$	-	180	-		
			$T_J=150^{\circ}C$	-	TBD	-		
t_f	Fall Time		$T_J=25^{\circ}C$	-	119	-		
			$T_J=150^{\circ}C$	-	TBD	-		
E_{on}	Turn-on Switching Energy		$T_J=25^{\circ}C$	-	2.5	-	mJ	
			$T_J=150^{\circ}C$	-	TBD	-		
E_{off}	Turn-off Switching Energy		$T_J=25^{\circ}C$	-	2.5	-		
			$T_J=150^{\circ}C$	-	TBD	-		

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit	Note
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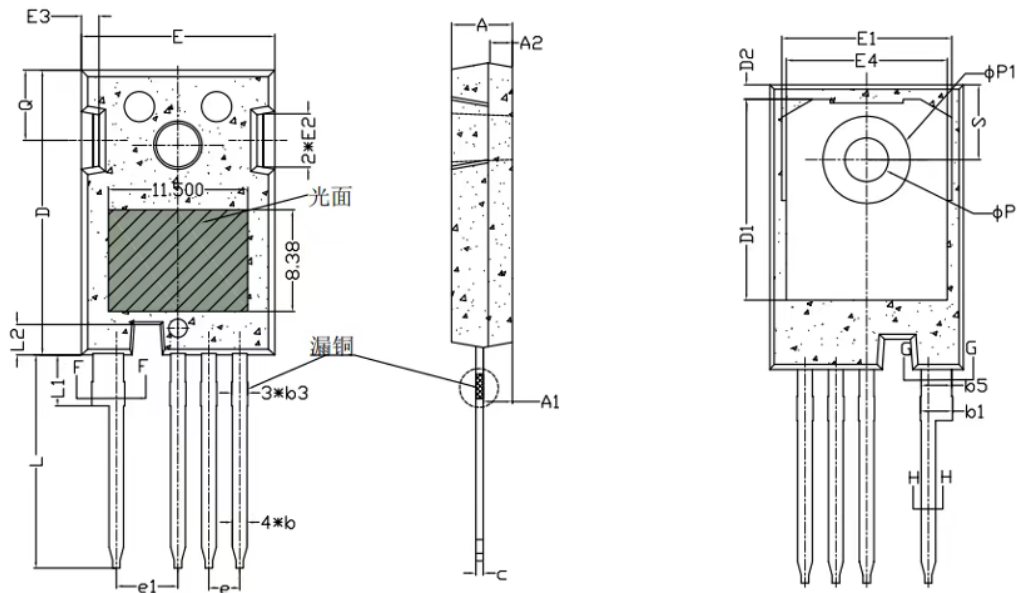
Gate Charge Characteristics

Q_g	Gate Charge Total	$V_{CE}=600V$, $I_C=75A$ $V_{GE}=15V$	-	TBD	-	μC	
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Drain-Source Body Diode Characteristics

V_F	Diode Forward Voltage	$I_F = 40A$, $T_j = 25^\circ C$	-	2.1	-	V	
		$I_F = 40A$, $T_j = 150^\circ C$	-	TBD	-		
T_{rr}	Reverse Recovery Time	$V_R=600V$, $I_F=40A$, $R_G=10\Omega$, $V_{GE}=\pm 15V$, $di/dt=1086A/\mu s$ ($T_j=150^\circ C$), Inductive Load	-	380	-	ns	
Q_{rr}	Reverse Recovery Charge		-	5.08	-	μC	
I_{rr}	Diode Peak Reverse Recovery Current		-	30.5	-	A	

Package Outlines
TO247-4



标号	尺寸			备注
	最小值	典型值	最大值	
A	4.83	5.02	5.21	
A1	2.29	2.41	2.54	
A2	1.91	2.00	2.16	
b'	1.07	1.20	1.28	4
b	1.07	1.20	1.33	
b1	2.39	2.67	2.94	
b2	2.39	2.67	2.84	4
b3	1.07	1.30	1.60	3
b4	1.07	1.30	1.50	4
b5	2.39	2.53	2.69	3
b6	2.39	2.53	2.64	4
c	0.55	0.60	0.68	
c1	0.55	0.60	0.65	
D	23.30	23.45	23.60	2
D1	16.25	16.55	17.65	
D2	0.95	1.19	1.25	
E	15.75	15.94	16.13	2
E1	13.10	14.02	14.15	
E2	3.68	4.40	5.10	
E3	1.00	1.45	1.90	
E4	12.38	13.26	13.43	
e	2.54 BSC			
e1	5.08 BSC			
L	17.31	17.57	17.82	
L1	3.97	4.19	4.37	
L2	2.35	2.50	2.65	
φP	3.51	3.61	3.65	
φP1	7.19 REF.			
Q	5.49	5.79	6.00	
S	6.04	6.17	6.30	
N*	4			

* Dimensions in millimeters

Package Marking and Ordering Information

Part Number	Top Marking	Package	Packing Method	Quantity
BKZ120N75HZ1	BKZ120N75HZ1	TO247-4L	Tube	30 units

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