

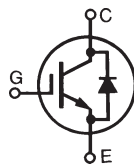
High Voltage, High Gain BIMOSFET™ Monolithic Bipolar MOS Transistor

IXBA16N170AHV IXBT16N170AHV

$$V_{CES} = 1700V$$

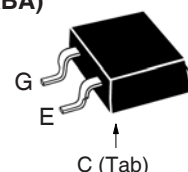
$$I_{C25} = 16A$$

$$V_{CE(sat)} \leq 6.0V$$

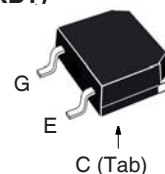


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_C = 25^\circ C$ to $150^\circ C$	1700	V
V_{CGR}	$T_J = 25^\circ C$ to $150^\circ C$, $R_{GE} = 1M\Omega$	1700	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ C$	16	A
I_{C90}	$T_C = 90^\circ C$	10	A
I_{CM}	$T_C = 25^\circ C$, 1ms	40	A
SSOA (RBSOA)	$V_{GE} = 15V$, $T_{VJ} = 125^\circ C$, $R_G = 33\Omega$ Clamped Inductive Load	$I_{CM} = 40$ 1350	A V
t_{sc} (SCSOA)	$V_{GE} = 15V$, $V_{CE} = 1200V$, $T_J = 125^\circ C$ $R_G = 33\Omega$, Non Repetitive	10	μs
P_C	$T_C = 25^\circ C$	150	W
T_J		-55 ... +150	$^\circ C$
T_{JM}		150	$^\circ C$
T_{stg}		-55 ... +150	$^\circ C$
T_L	Maximum Lead Temperature for Soldering	300	$^\circ C$
T_{SOLD}	Plastic Body for 10s	260	$^\circ C$
F_C	Mounting Force (TO-263)	10..65 / 22..14.6	N/lb
Weight	TO-263	2.5	g
	TO-268	4.0	g

TO-263HV (IXBA)



TO-268HV (IXBT)



G = Gate C = Collector
E = Emitter Tab = Collector

Features

- High Voltage Package
- High Blocking Voltage
- Anti-Parallel Diode
- Low Conduction Losses

Advantages

- Low Gate Drive Requirement
- High Power Density

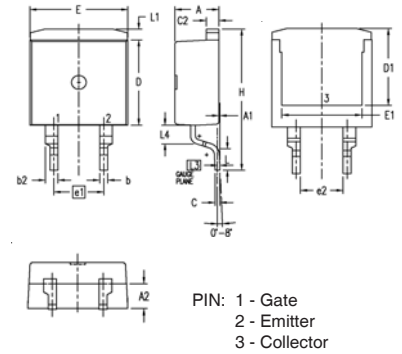
Applications:

- Switch-Mode and Resonant-Mode Power Supplies
- Uninterruptible Power Supplies (UPS)
- Laser Generators
- Capacitor Discharge Circuits
- AC Switches

Symbol	Test Conditions ($T_J = 25^\circ C$ Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{CES}	$I_C = 250\mu A$, $V_{GE} = 0V$	1700		V
$V_{GE(th)}$	$I_C = 250\mu A$, $V_{CE} = V_{GE}$	2.5		5.5 V
I_{CES}	$V_{CE} = 0.8 \cdot V_{CES}$, $V_{GE} = 0V$ $T_J = 125^\circ C$			50 μA 1.5 mA
I_{GES}	$V_{CE} = 0V$, $V_{GE} = \pm 20V$			± 100 nA
$V_{CE(sat)}$	$I_C = 10A$, $V_{GE} = 15V$, Note 1 $T_J = 125^\circ C$		5.0	6.0 V V

Symbol Test Conditions ($T_J = 25^\circ\text{C}$ Unless Otherwise Specified)		Characteristic Values			
		Min.	Typ.	Max.	
g_{fs}	$I_C = 10\text{A}, V_{CE} = 10\text{V}$, Note 1	8.0	12.5	S	
C_{ies}	$V_{CE} = 25\text{V}, V_{GE} = 0\text{V}, f = 1\text{MHz}$		1400	pF	
C_{oes}			90	pF	
C_{res}			31	pF	
$Q_{g(on)}$	$I_C = 10\text{A}, V_{GE} = 15\text{V}, V_{CE} = 0.5 \cdot V_{CES}$		65	nC	
Q_{ge}			13	nC	
Q_{gc}			22	nC	
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$		15	ns	
t_{ri}		$I_C = 10\text{A}, V_{GE} = 15\text{V}$		25	ns
$t_{d(off)}$	$V_{CE} = 0.8 \cdot V_{CES}, R_G = 10\Omega$		160	250	ns
t_{fi}		Note 2		50	100
E_{off}			1.2	2.5	mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$		15	ns	
t_{ri}		$I_C = 10\text{A}, V_{GE} = 15\text{V}$		28	ns
E_{on}	$V_{CE} = 0.8 \cdot V_{CES}, R_G = 10\Omega$		2.0		mJ
$t_{d(off)}$		Note 2		220	
t_{fi}			150		ns
E_{off}			2.6		mJ
R_{thJC}					0.83 $^\circ\text{C/W}$

TO-263HV Outline



SYM	INCHES		MILLIMETER	
	MIN	MAX	MIN	MAX
A	.170	.185	4.30	4.70
A1	.000	.008	0.00	0.20
A2	.091	.098	2.30	2.50
b	.028	.035	0.70	0.90
b2	.046	.054	1.18	1.38
C	.018	.024	0.45	0.60
C2	.049	.055	1.25	1.40
D	.354	.370	9.00	9.40
D1	.311	.327	7.90	8.30
E	.386	.402	9.80	10.20
E1	.307	.323	7.80	8.20
e1	.200 BSC		5.08 BSC	
(e2)	.163	.174	4.13	4.43
H	.591	.614	15.00	15.60
L	.079	.102	2.00	2.60
L1	.039	.055	1.00	1.40
L3	.010 BSC		0.254 BSC	
(L4)	.071	.087	1.80	2.20

Reverse Diode

Symbol Test Conditions ($T_J = 25^\circ\text{C}$ Unless Otherwise Specified)		Characteristic Values		
		Min.	Typ.	Max.
V_F	$I_F = 10\text{A}, V_{GE} = 0\text{V}$			5.0 V
t_{rr}	$I_F = 10\text{A}, V_{GE} = 0\text{V}, -di_F/dt = 50\text{A}/\mu\text{s}$		360	ns
I_{RM}		$V_R = 100\text{V}, V_{GE} = 0\text{V}$		10

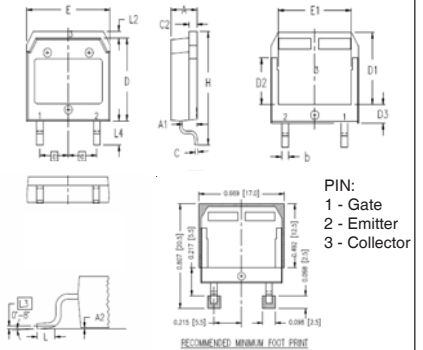
Notes:

1. Pulse test, $t \leq 300\mu\text{s}$, duty cycle, $d \leq 2\%$.
2. Switching times & energy losses may increase for higher $V_{CE}(\text{clamp})$, T_J or R_G .

ADVANCE TECHNICAL INFORMATION

The product presented herein is under development. The Technical Specifications offered are derived from a subjective evaluation of the design, based upon prior knowledge and experience, and constitute a "considered reflection" of the anticipated result. IXYS reserves the right to change limits, test conditions, and dimensions without notice.

TO-268HV Outline



SYM	INCHES		MILLIMETER	
	MIN	MAX	MIN	MAX
A	.193	.201	4.90	5.10
A1	.106	.114	2.70	2.90
A2	.001	.010	0.02	0.25
b	.045	.057	1.15	1.45
C	.016	.026	0.40	0.65
C2	.057	.063	1.45	1.60
D	.543	.551	13.80	14.00
D1	.465	.476	11.80	12.10
D2	.295	.307	7.50	7.80
D3	.114	.126	2.90	3.20
E	.624	.632	15.85	16.05
E1	.524	.535	13.30	13.60
(e)	.215 BSC		5.45 BSC	
H	.736	.752	18.70	19.10
L	.067	.079	1.70	2.00
L2	.039	.045	1.00	1.15
(L3)	.010 BSC		0.25 BSC	
L4	.150	.161	3.80	4.10

IXYS Reserves the Right to Change Limits, Test Conditions and Dimensions.

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents:	4,835,592	4,931,844	5,049,961	5,237,481	6,162,665	6,404,065 B1	6,683,344	6,727,585	7,005,734 B2	7,157,338B2
	4,860,072	5,017,508	5,063,307	5,381,025	6,259,123 B1	6,534,343	6,710,405 B2	6,759,692	7,063,975 B2	
	4,881,106	5,034,796	5,187,117	5,486,715	6,306,728 B1	6,583,505	6,710,463	6,771,478 B2	7,071,537	