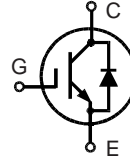


High Voltage BIMOSFET™ Monolithic Bipolar MOS Transistor

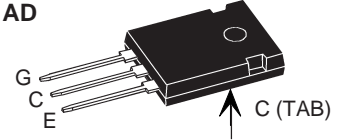
IXBH 9N140G
IXBH 9N160G

V_{CES} = 1400/1600 V
I_{C25} = 9 A
V_{CE(sat)} = 4.9 V typ.
t_{fi} = 70 ns

N-Channel, Enhancement Mode
MOSFET compatible



TO-247 AD



G = Gate, C = Collector,
E = Emitter, TAB = Collector

Preliminary Data

Symbol	Conditions	Maximum Ratings		
		9N140G	9N160G	
V _{CES}	T _J = 25°C to 150°C	1400	1600	V
V _{CGR}	T _J = 25°C to 150°C; R _{GE} = 1 MΩ	1400	1600	V
V _{GES}	Continuous		±20	V
V _{GEM}	Transient		±30	V
I _{C25}	T _C = 25°C,		9	A
I _{C90}	T _C = 90°C		5	A
I _{CM}	T _C = 25°C, 1 ms		10	A
SSOA (RBSOA)	V _{GE} = 10 V, T _{VJ} = 125°C, R _G = 27 Ω V _{CE} = 0.8 • V _{CES} Clamped inductive load, L = 100 μH		I _{CM} = 12	A
P _C	T _C = 25°C		100	W
T _J		-55 ... +150		°C
T _{JM}			150	°C
T _{stg}		-55 ... +150		°C
T _L	1.6 mm (0.063 in) from case for 10 s		300	°C
M _d	Mounting torque		1.15/10	Nm/lb.in.
Weight			6	g

Features

- High Voltage BIMOSFET™
 - replaces high voltage Darlington's and series connected MOSFET's
 - lower effective R_{DS(on)}
- MOS Gate turn-on
 - drive simplicity
 - MOSFET compatible for 10V turn on gate voltage
- Monolithic construction
 - high blocking voltage capability
 - very fast turn-off characteristics
- International standard package JEDEC TO-247 AD
- Reverse conducting capability

Applications

- Flyback converters
- DC choppers
- Uninterruptible power supplies (UPS)
- Switched-mode and resonant-mode power supplies
- CRT deflection
- Lamp ballasts

Advantages

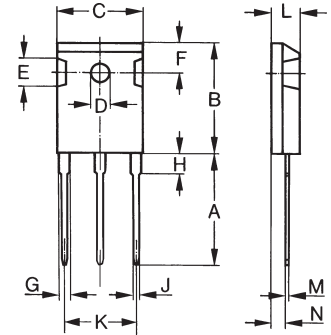
- Easy to mount with 1 screw (isolated mounting screw hole)
- Space savings
- High power density

Symbol	Conditions	Characteristic Values (T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
BV _{CES}	I _C = 0.25 mA, V _{GE} = 0 V	9N140G 9N160G	1400 1600	V
V _{GE(th)}	I _C = 0.5 mA, V _{CE} = V _{GE}		3.5	5.5 V
I _{CES}	V _{CE} = 0.8 • V _{CES} V _{GE} = 0 V	T _J = 25°C T _J = 125°C		0.1 100 μA mA
I _{GES}	V _{CE} = 0 V, V _{GE} = ±20 V			± 500 nA
V _{CE(sat)}	I _C = I _{C90} , V _{GE} = 15 V	T _J = 125°C	4.9 5.6	7 V V

Symbol	Conditions	Characteristic Values		
		(T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
C _{ies}	V _{CE} = 25 V, V _{GE} = 0 V, f = 1 MHz		550	pF
C _{oes}			36	pF
C _{res}			5	pF
Q _g	I _C = 5 A, V _{CE} = 600 V, V _{GE} = 10 V		34	nC
t _{d(on)}	Inductive load, T_J = 125°C I _C = I _{C90} , V _{GE} = 10 V, L = 100 μH, V _{CE} = 960 V, R _G = 27 Ω		140	ns
t _{ri}			200	ns
t _{d(off)}			120	ns
t _{fi}			70	ns
R _{thJC}				1.25 K/W
R _{thCK}		0.25		K/W

Reverse Conduction
Characteristic Values
(T_J = 25°C, unless otherwise specified)

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
V _F	I _F = I _{C90} , V _{GE} = 0 V		3.6	5

TO-247 AD Outline


Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.610	0.640
D	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.4	6.2	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.5	-	0.177
J	1.0	1.4	0.040	0.055
K	10.8	11.0	0.426	0.433
L	4.7	5.3	0.185	0.209
M	0.4	0.8	0.016	0.031
N	1.5	2.49	0.087	0.102

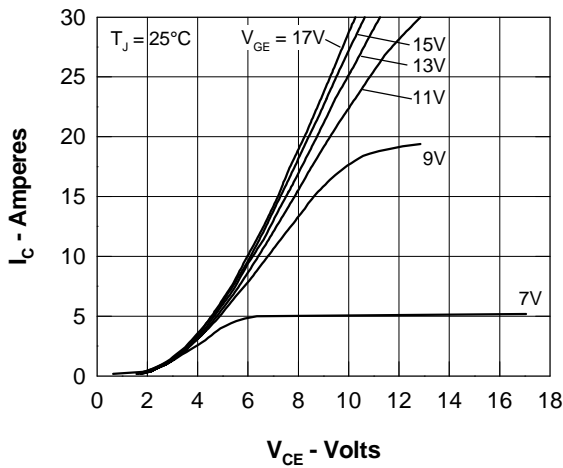


Fig. 1 Typ. Output Characteristics

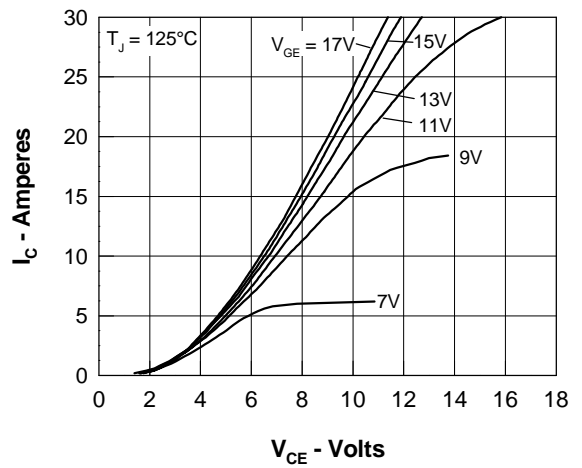


Fig. 2 Typ. Output Characteristics

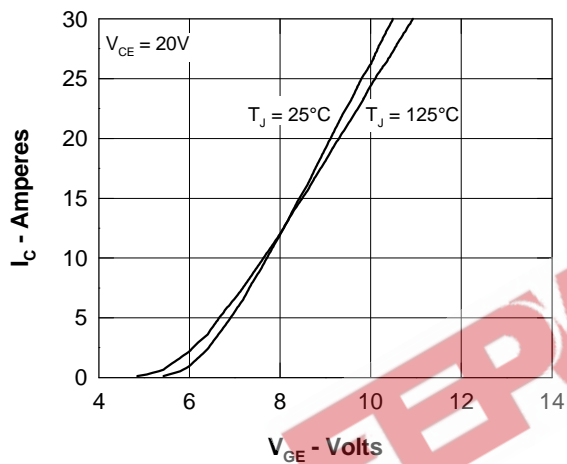


Fig. 3 Typ. Transfer Characteristics

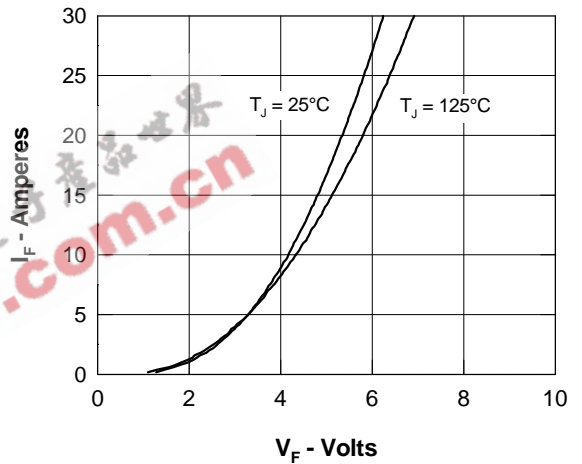


Fig. 4 Typ. Characteristics of Reverse Conduction

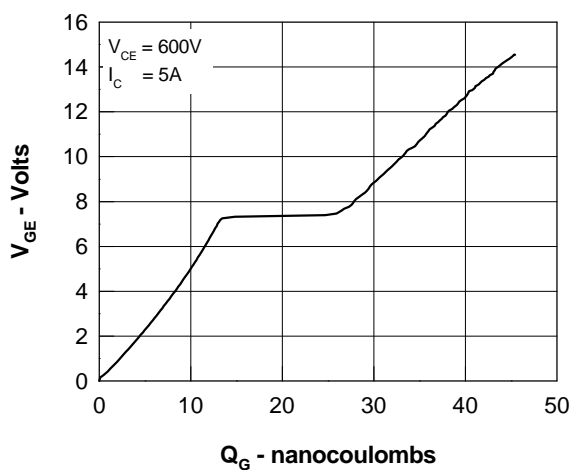


Fig. 5 Typ. Gate Charge characteristics

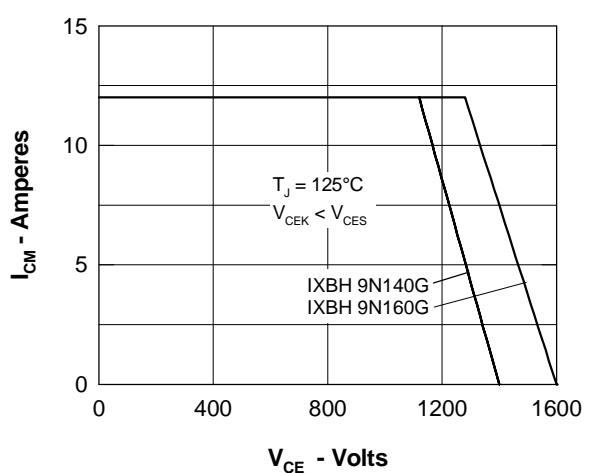


Fig. 6 Reverse Biased Safe Operating Area RBSOA

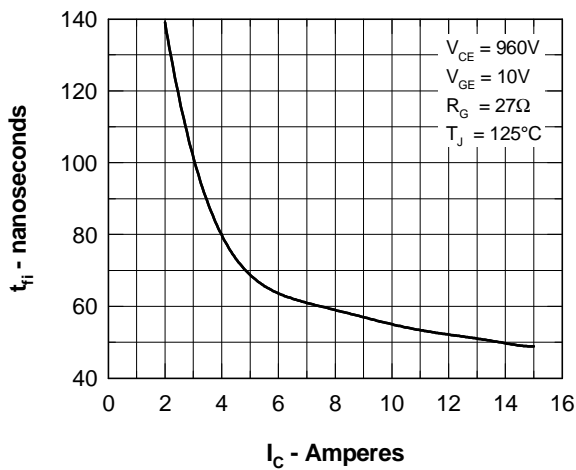


Fig. 7 Typ. Fall Time

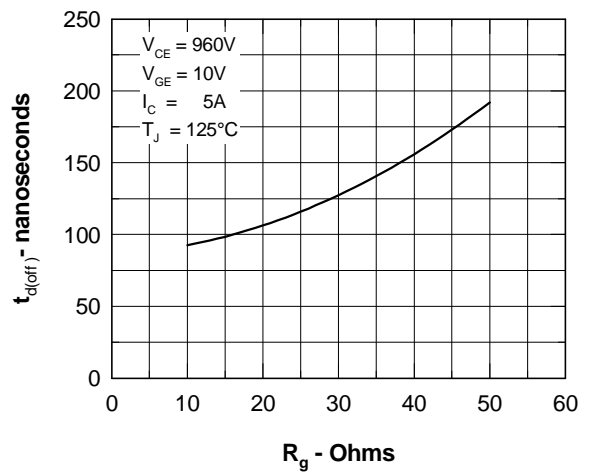


Fig. 8 Typ. Turn Off Delay Time

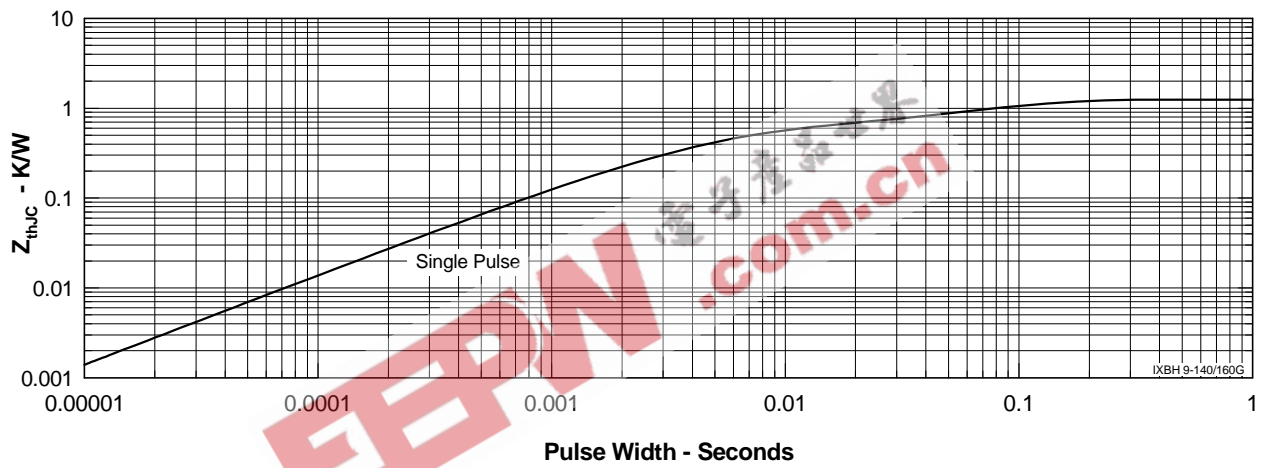


Fig. 9 Typ. Transient Thermal Impedance