



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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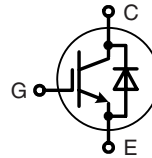


High Voltage BIMOSFET™

Monolithic Bipolar

MOS Transistor

N-Channel, Enhancement Mode



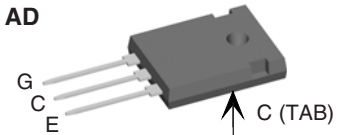
$$I_{C25} = 33 \text{ A}$$

$$V_{CES} = 1600 \text{ V}$$

$$V_{CE(sat)} = 6.2 \text{ V typ.}$$

$$t_{fi} = 40 \text{ ns}$$

TO-247 AD



G = Gate,
E = Emitter,

C = Collector,
TAB = Collector

Symbol	Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C}$ to 150°C	1600	V
V_{CGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GE} = 1 \text{ M}\Omega$	1600	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$	33	A
I_{C90}	$T_C = 90^\circ\text{C}$	20	A
I_{CM}	$T_C = 25^\circ\text{C}$, 1 ms	40	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}$, $T_{VJ} = 125^\circ\text{C}$, $R_G = 22 \Omega$, $V_{CE} = 0.8 \cdot V_{CES}$ Clamped inductive load, $L = 100 \mu\text{H}$	$I_{CM} = 40$	A
P_C	$T_C = 25^\circ\text{C}$	350	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 ... +150	$^\circ\text{C}$
T_L	1.6 mm (0.063 in) from case for 10 s	300	$^\circ\text{C}$
M_d	Mounting torque	1.15/10Nm/lb.in.	
Weight		6	g

Features

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

Applications

- AC motor speed control
- DC servo and robot drives
- DC choppers
- Uninterruptible power supplies (UPS)
- Switched-mode and resonant-mode power supplies
- CRT deflection
- Lamp ballasts

Advantages

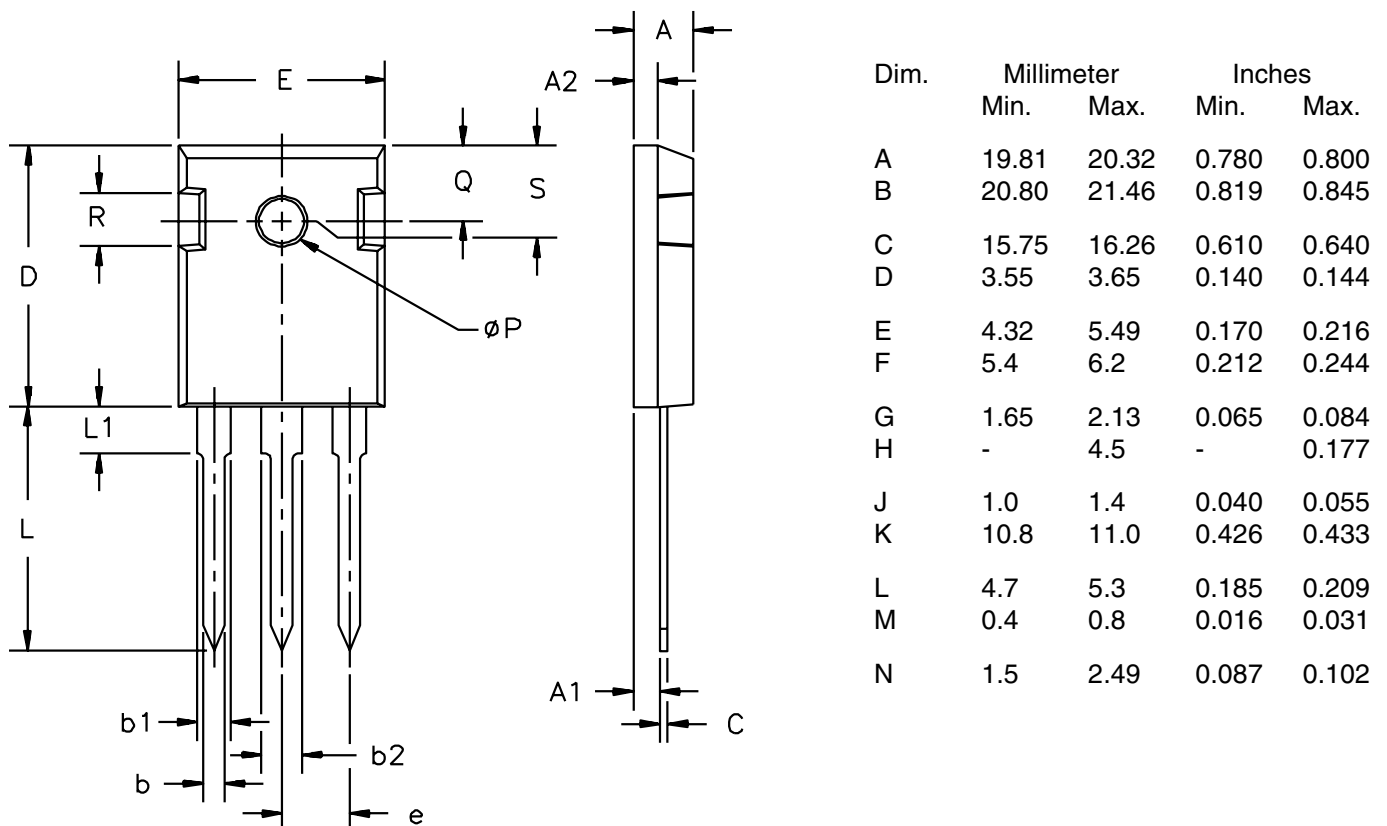
- Easy to mount with 1 screw (isolated mounting screw hole)
- Space savings
- High power density

Symbol	Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
BV_{CES}	$I_C = 1 \text{ mA}$, $V_{GE} = 0 \text{ V}$	1600		V
$V_{GE(th)}$	$I_C = 2 \text{ mA}$, $V_{CE} = V_{GE}$	4		8 V
I_{CES}	$V_{CE} = 0.8 \cdot V_{CES}$ $V_{GE} = 0 \text{ V}$			400 μA 3 mA
I_{GES}	$V_{CE} = 0 \text{ V}$, $V_{GE} = \pm 20 \text{ V}$			$\pm 500 \text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}$, $V_{GE} = 15 \text{ V}$ $T_J = 125^\circ\text{C}$		6.2	7.1 V 7.8 V

Symbol	Conditions	Characteristic Values		
		(T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
C_{ies} C_{oes} C_{res}	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		3300 220 30	pF pF pF
Q_g	$I_C = 20 \text{ A}, V_{CE} = 600 \text{ V}, V_{GE} = 15 \text{ V}$		130	nC
$t_{d(on)}$ t_{ri} $t_{d(off)}$ t_{fi}	Inductive load, T_J = 125°C $I_C = I_{C90}, V_{GE} = 15 \text{ V}, L = 100 \mu\text{H},$ $V_{CE} = 960 \text{ V}, R_G = 22 \Omega$		200 60 270 40	ns ns ns ns
R_{thJC} R_{thCK}			0.25	0.35 K/W K/W

Reverse Conduction		Characteristic Values		
		(T _J = 25°C, unless otherwise specified)		
Symbol	Conditions	min.	typ.	max.
V_F	$I_F = I_{C90}, V_{GE} = 0 \text{ V}, \text{Pulse test}$ $t \leq 300 \mu\text{s}, \text{duty cycle } d \leq 2\%$		2.5	5 V

TO-247 AD Outline



IXYS reserves the right to change limits, test conditions and dimensions.

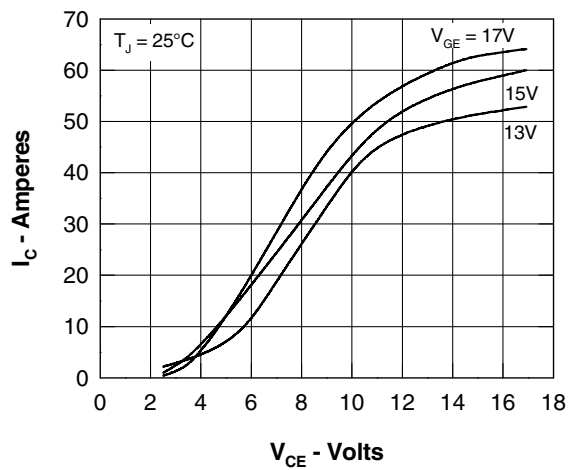


Fig. 1 Typ. Output Characteristics

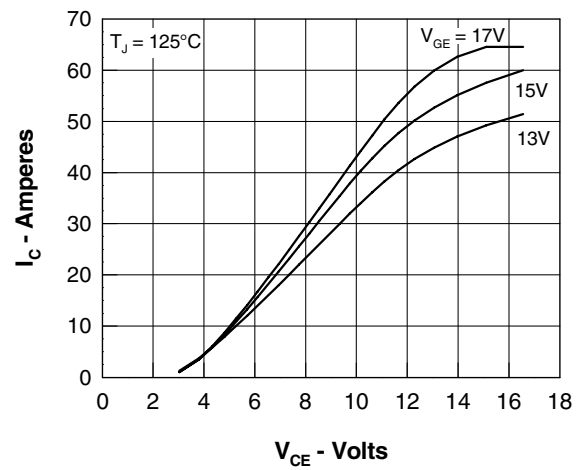


Fig. 2 Typ. Output Characteristics

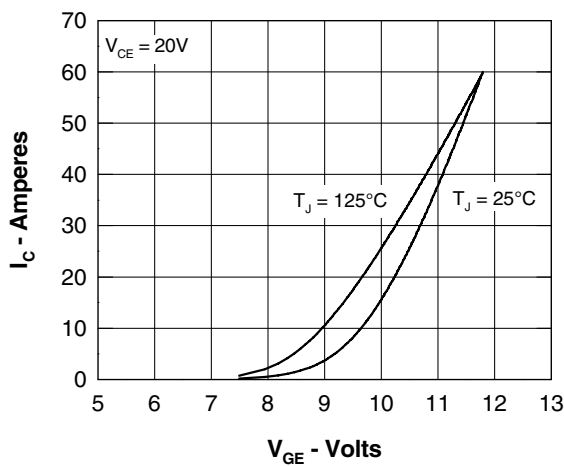


Fig. 3 Typ. Transfer Characteristics

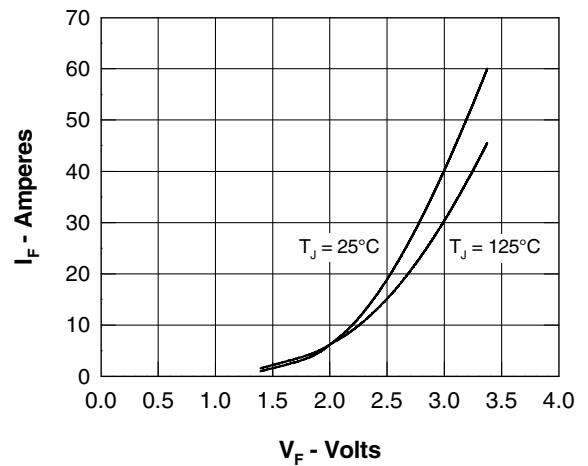


Fig. 4 Typ. Characteristics of Reverse Conduction

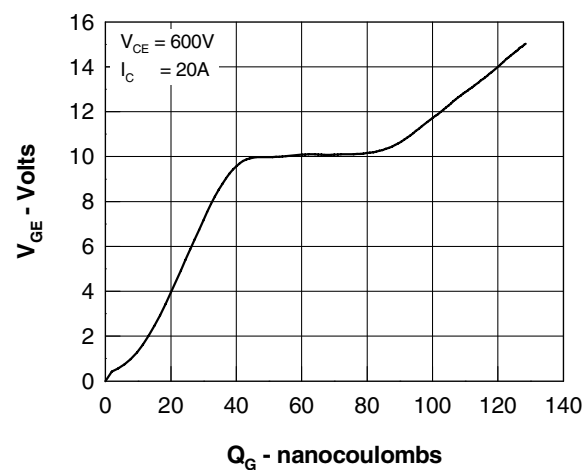


Fig. 5 Typ. Gate Charge characteristics

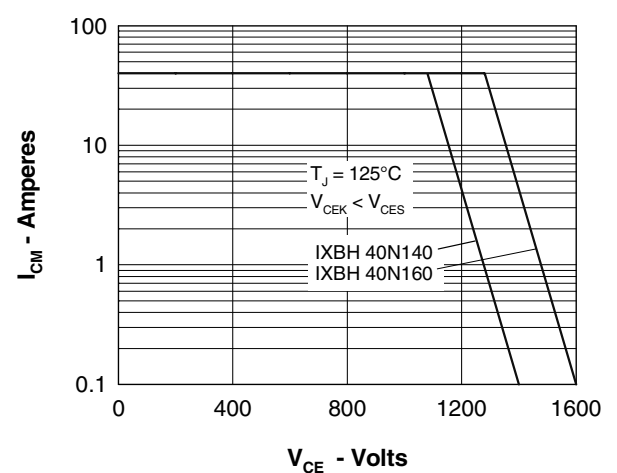


Fig. 6 Reverse Based Safe Operating Area RBSOA

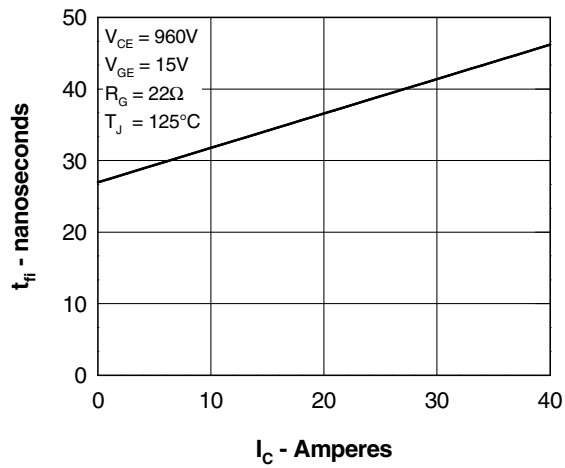


Fig. 7 Typ. Fall Time

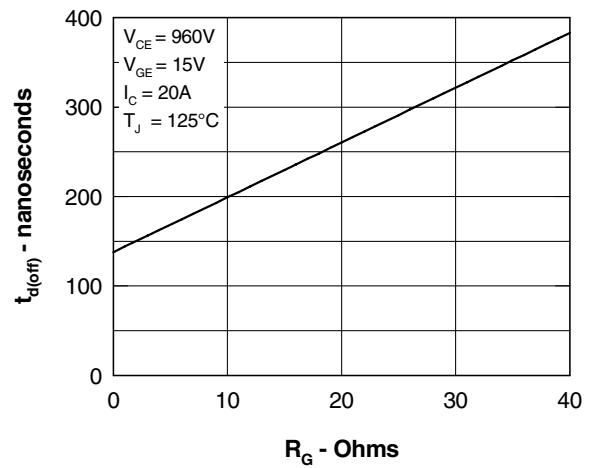


Fig. 8 Typ. Turn Off Delay Time

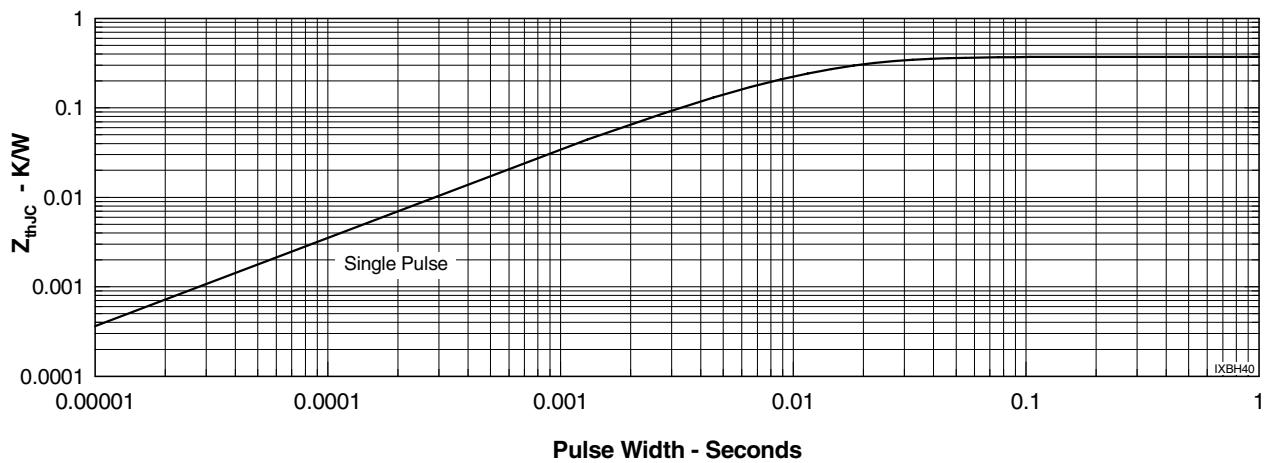


Fig. 9 Typ. Transient Thermal Impedance