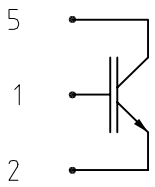
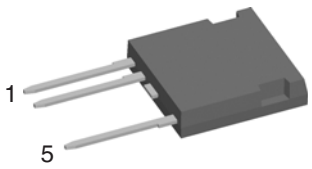
High Voltage BIMOSFET™

in High Voltage ISOPLUS i4-PAC™

Monolithic Bipolar MOS Transistor

I_{C25} = 7 A
V_{CES} = 1600 V
$V_{CE(sat)}$ = 4.9 V
t_f = 70 ans





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Symbol	Conditions	Maximum Ratings	
V_{CES}	T_{VJ} = 25°C to 150°C	1600	V
V_{GES}		± 20	V
I_{C25}	T_C = 25°C	7	A
I_{C90}	T_C = 90°C	4	A
I_{CM}	V_{GE} = 10/0 V; R_G = 27 Ω; T_{VJ} = 125°C	12	A
V_{CEK}	RBSOA, Clamped inductive load; L = 100 µH	0.8·V_{CES}	
P_{tot}	T_C = 25°C	70	W

Symbol	Conditions (unless otherwise specified)	Characteristic Values min.	typ.	max.	
$V_{CE(sat)}$	I_C = 5 A; V_{GE} = 15 V; T_{VJ} = 25°C		4.9	7	V
	T_{VJ} = 125°C		5.6		V
$V_{GE(th)}$	I_C = 0.5 mA; V_{GE} = V_{CE}	3.5		5.5	V
I_{CES}	V_{CE} = 0.8V_{CES}; V_{GE} = 0 V; T_{VJ} = 25°C			0.1	mA
	T_{VJ} = 125°C		0.1		mA
I_{GES}	V_{CE} = 0 V; V_{GE} = ± 20 V			500	nA
$t_{d(on)}$	Inductive load, T_{VJ} = 125°C		140		ns
t_r	V_{CE} = 960 V; I_C = 5 A		200		ns
$t_{d(off)}$	V_{GE} = 10/0 V; R_G = 27 Ω		120		ns
t_f			70		ns
C_{ies}	V_{CE} = 25 V; V_{GE} = 0 V; f = 1 MHz		550		pF
Q_{Gon}	V_{CE} = 600V; V_{GE} = 10 V; I_C = 5 A		34		nC
V_F	(reverse conduction); I_F = 5 A		3.6		V
R_{thJC}				1.75	K/W

Features

- High Voltage BIMOSFET™
  - substitute for high voltage MOSFETs with significantly lower voltage drop
  - MOSFET compatible control 10 V turn on gate voltage
  - fast switching for high frequency operation
  - reverse conduction capability
- ISOPLUS i4-PAC™ high voltage package
  - isolated back surface
  - enlarged creepage towards heatsink
  - enlarged creepage between high voltage pins
  - application friendly pinout
  - high reliability
  - industry standard outline

Applications

- switched mode power supplies
- DC-DC converters
- resonant converters
- lamp ballasts
- laser generators, x ray generators

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

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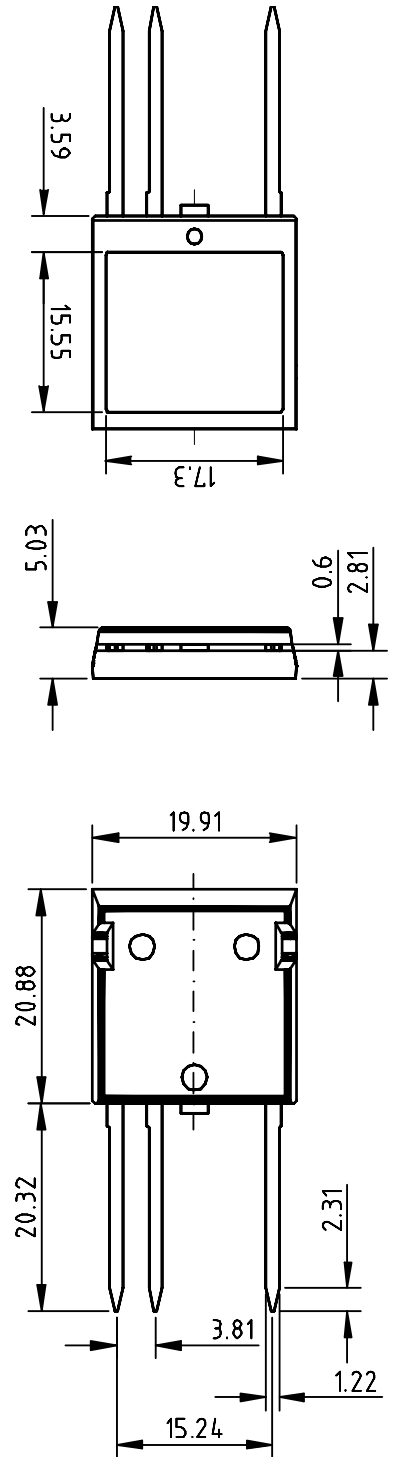
Component

Symbol	Conditions	Maximum Ratings	
T_{VJ}		-55...+150	°C
T_{stg}		-55...+125	°C
V_{ISOL}	$I_{ISOL} \leq 1$ mA; 50/60 Hz	2500	V~
F_C	mounting force with clip	20...120	N

Symbol	Conditions	Characteristic Values min.	typ.	max.	
d_S,d_A	pin 2 - pin 5	7			mm
d_S,d_A	pin - backside metal	5.5			mm
R_{thCH}	with heatsink compound		0.15		K/W
Weight			9		g

Dimensions in mm (1 mm = 0.0394")



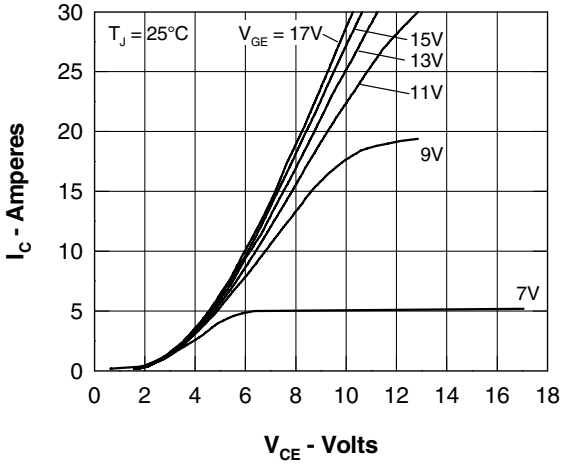


Fig. 1 Typ. Output Characteristics

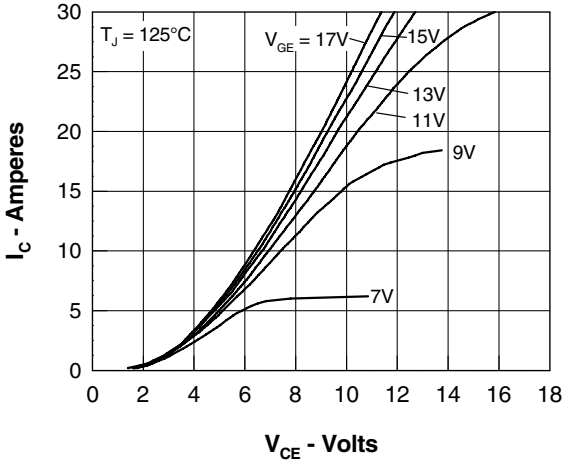


Fig. 2 Typ. Output Characteristics

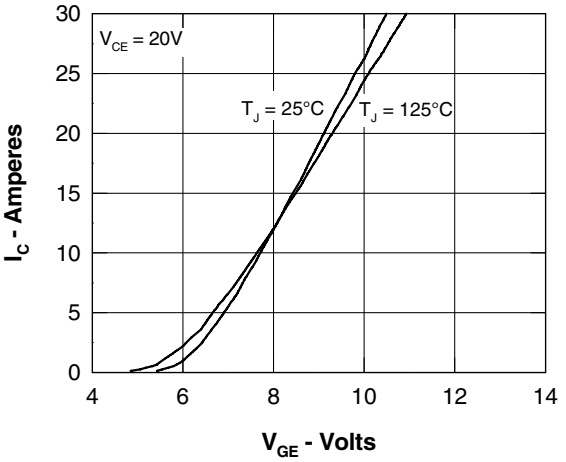


Fig. 3 Typ. Transfer Characteristics

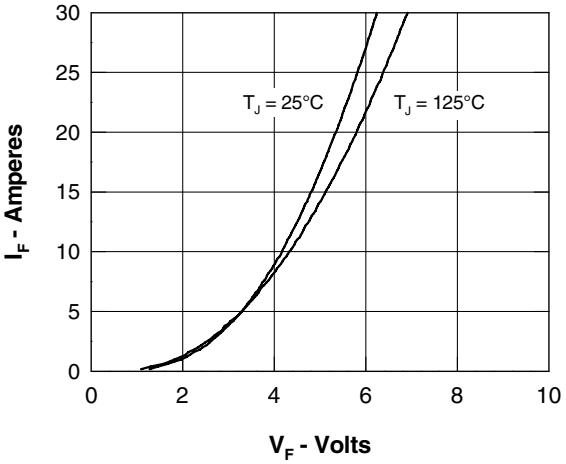


Fig. 4 Typ. Characteristics of Reverse Conduction

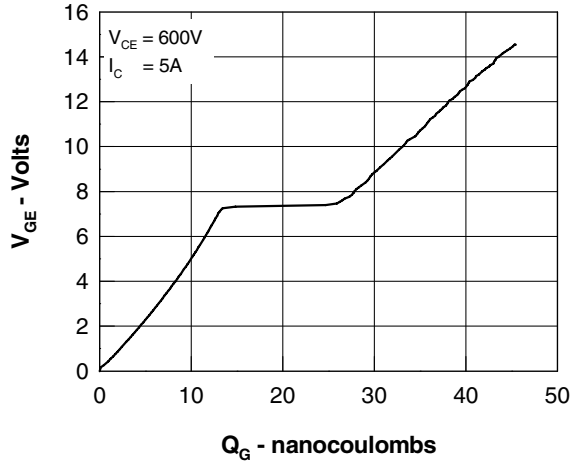


Fig. 5 Typ. Gate Charge characteristics

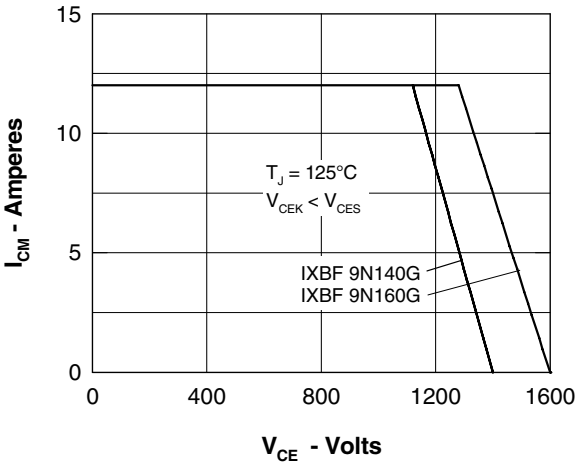


Fig. 6 Reverse Biased Safe Operating Area RBSOA

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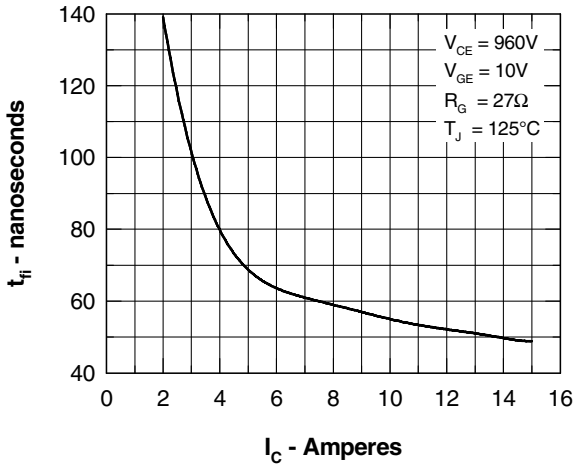

Fig. 7 Typ. Fall Time

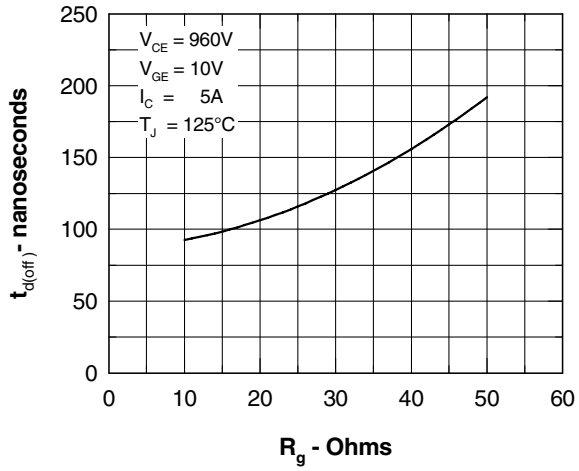

Fig. 8 Typ. Turn Off Delay Time

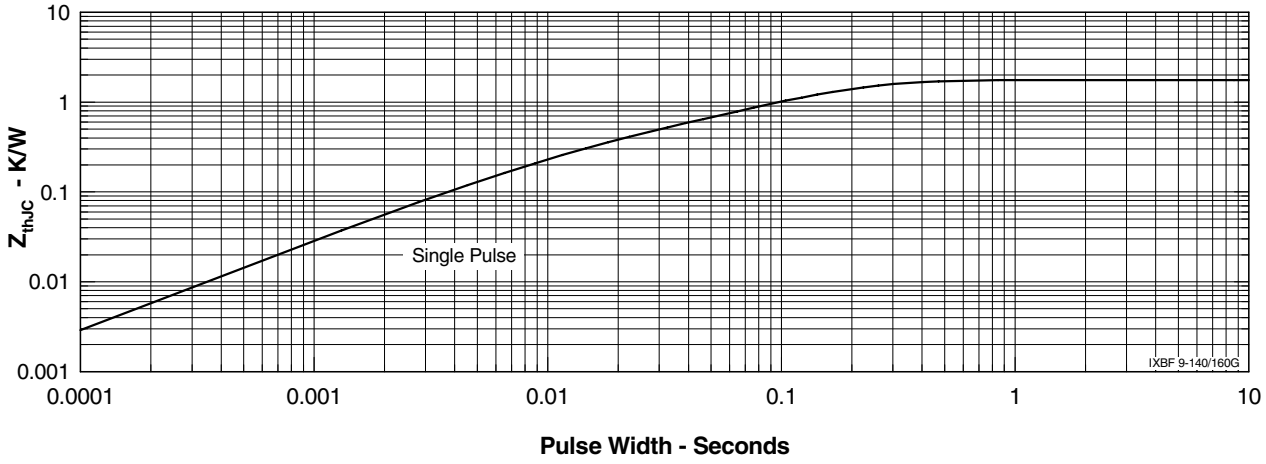

Fig. 9 Typ. Transient Thermal Impedance