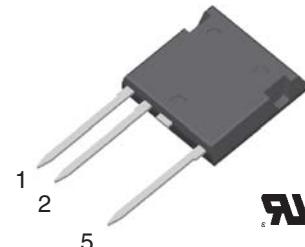
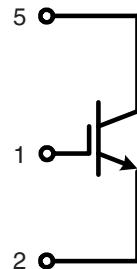


# High Voltage IGBT

in High Voltage  
ISOPLUS i4-PAC™

**I<sub>C25</sub>** = 32 A  
**V<sub>CES</sub>** = 2500 V  
**V<sub>CE(sat)</sub>** = 3.2 V  
**t<sub>f</sub>** = 250 ns



## IGBT

Symbol	Conditions	Maximum Ratings		
V <sub>CES</sub>	T <sub>VJ</sub> = 25°C to 150°C	2500		V
V <sub>GES</sub>		± 20		V
I <sub>C25</sub>	T <sub>C</sub> = 25°C	32		A
I <sub>C90</sub>	T <sub>C</sub> = 90°C	19		A
I <sub>CM</sub>	V <sub>GE</sub> = ±15 V; R <sub>G</sub> = 47 Ω; T <sub>VJ</sub> = 125°C	70		A
V <sub>CEK</sub>	RBSOA, Clamped inductive load; L = 100 μH	1200		V
P <sub>tot</sub>	T <sub>C</sub> = 25°C	250		W

Symbol	Conditions	Characteristic Values		
		(T <sub>VJ</sub> = 25°C, unless otherwise specified)	min.	typ.
V <sub>CE(sat)</sub>	I <sub>C</sub> = 19 A; V <sub>GE</sub> = 15 V; T <sub>VJ</sub> = 25°C T <sub>VJ</sub> = 125°C	3.2 4.7	3.9	V
V <sub>GE(th)</sub>	I <sub>C</sub> = 1 mA; V <sub>GE</sub> = V <sub>CE</sub>	5	8	V
I <sub>CES</sub>	V <sub>CE</sub> = V <sub>CES</sub> ; V <sub>GE</sub> = 0 V; T <sub>VJ</sub> = 25°C T <sub>VJ</sub> = 125°C	0.2	0.15	mA
I <sub>GES</sub>	V <sub>CE</sub> = 0 V; V <sub>GE</sub> = ± 20 V		500	nA
{ t <sub>d(on)</sub> t <sub>r</sub> t <sub>d(off)</sub> t <sub>f</sub> E <sub>on</sub> E <sub>off</sub> }	Inductive load, T <sub>VJ</sub> = 125°C V <sub>CE</sub> = 1500 V; I <sub>C</sub> = 19 A V <sub>GE</sub> = ±15 V; R <sub>G</sub> = 47 Ω	100		ns
		50		ns
		600		ns
		250		ns
		15		mJ
		30		mJ
{ C <sub>ies</sub> C <sub>oes</sub> C <sub>res</sub> }	V <sub>CE</sub> = 25 V; V <sub>GE</sub> = 0 V; f = 1 MHz	2.28		nF
		103		pF
		43		pF
Q <sub>Gon</sub>	V <sub>CE</sub> = 1500 V; V <sub>GE</sub> = 15 V; I <sub>C</sub> = 19 A	142		nC
R <sub>thJC</sub>			0.5	K/W

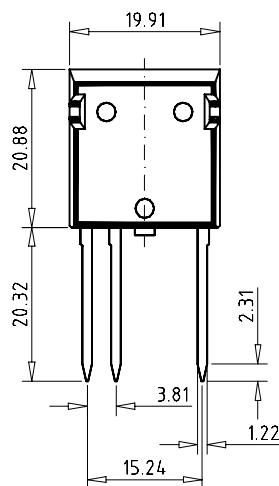
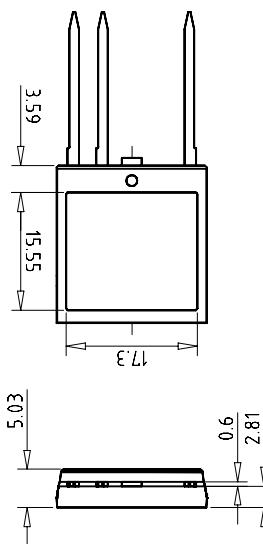
IXYS reserves the right to change limits, test conditions and dimensions.

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**Component**

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

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
$d_s, d_A$	C pin - E pin	7.0		mm
$d_s, d_A$	pin - backside metal	5.5		mm
$R_{thCH}$	with heatsink compound	0.15		K/W
<b>Weight</b>		9		g

**Dimensions in mm (1 mm = 0.0394")**

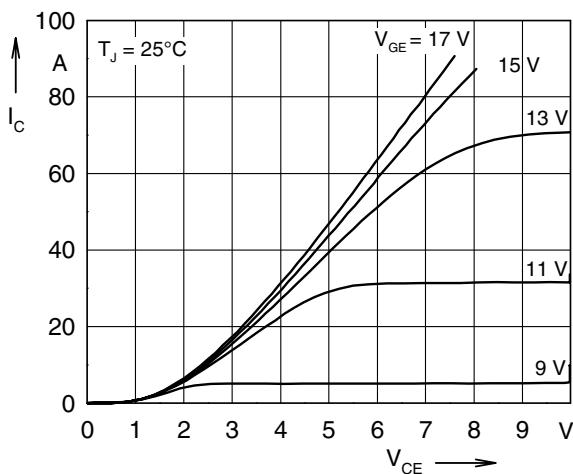


Fig. 1 Typ. Output Characteristics

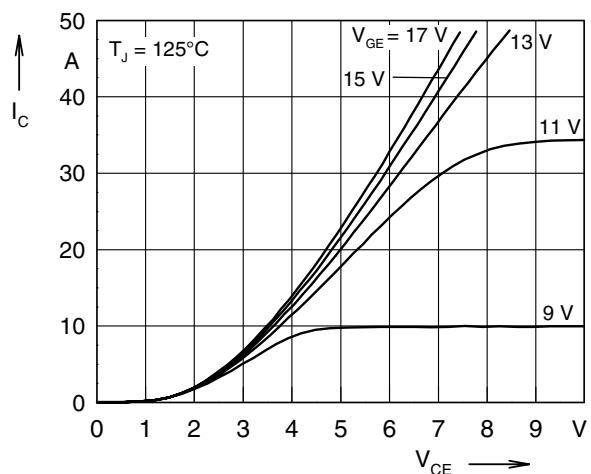


Fig. 2 Typ. Output Characteristics

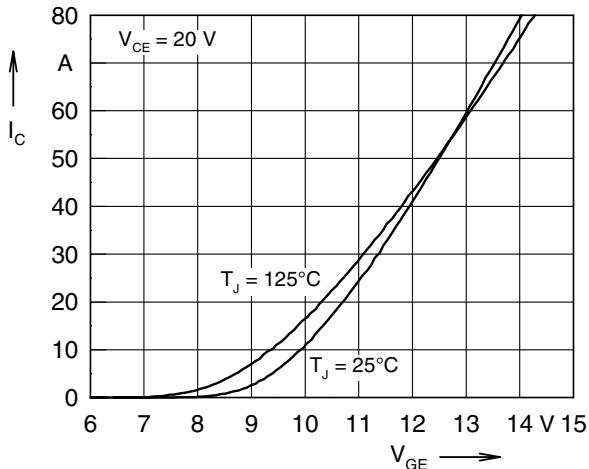


Fig. 3 Typ. Transfer Characteristics

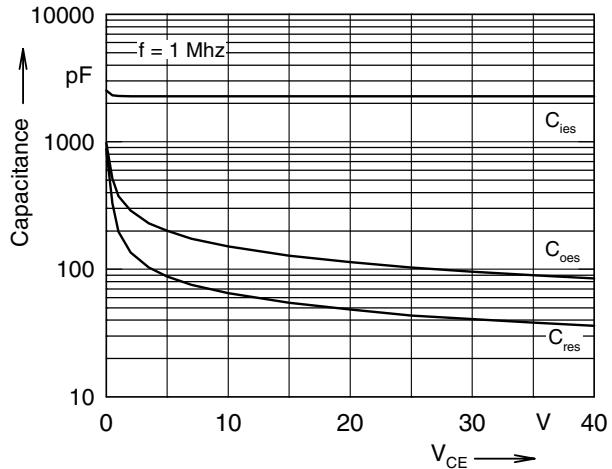


Fig. 4 Capacitance curves

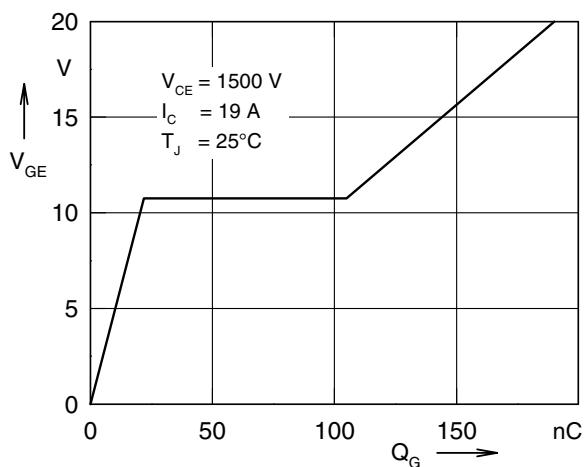


Fig. 5 Typ. Gate Charge characteristics

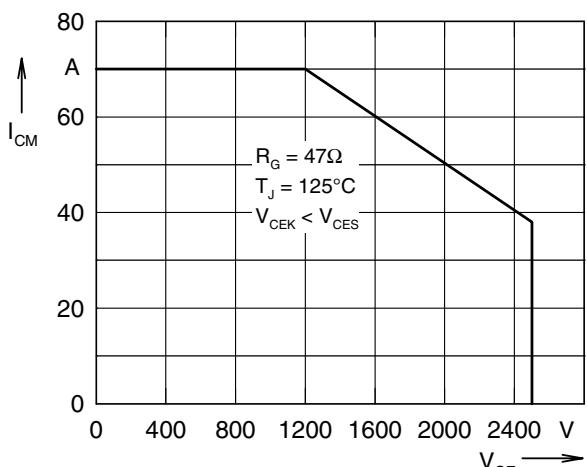


Fig. 6 Reverse Biased Safe Operating Area RBSOA

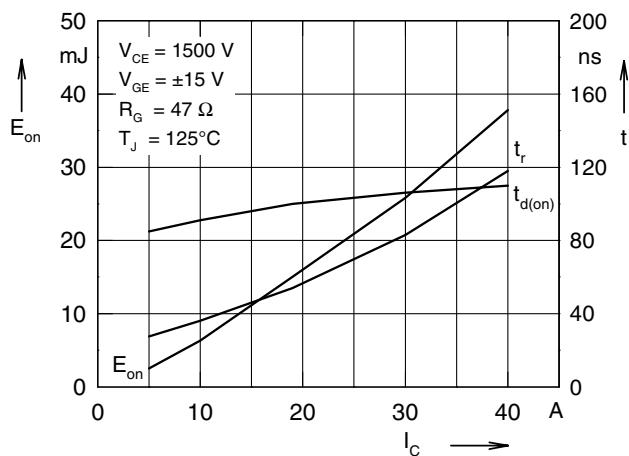


Fig. 7 Typ. turn on energy and switching times versus collector current

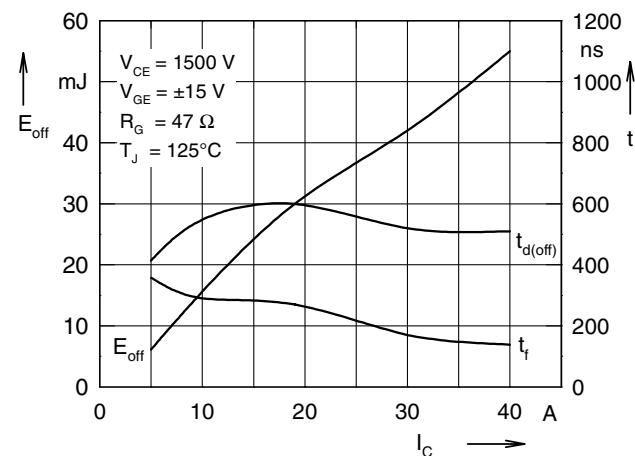


Fig. 8 Typ. turn off energy and switching times versus collector current

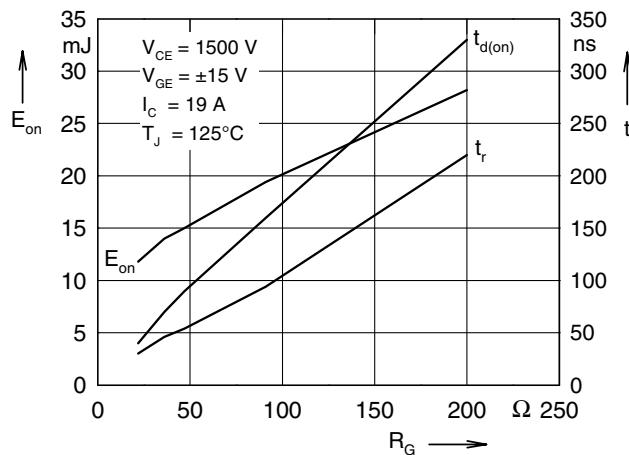


Fig. 9 Typ. turn on energy and switching times versus gate resistor

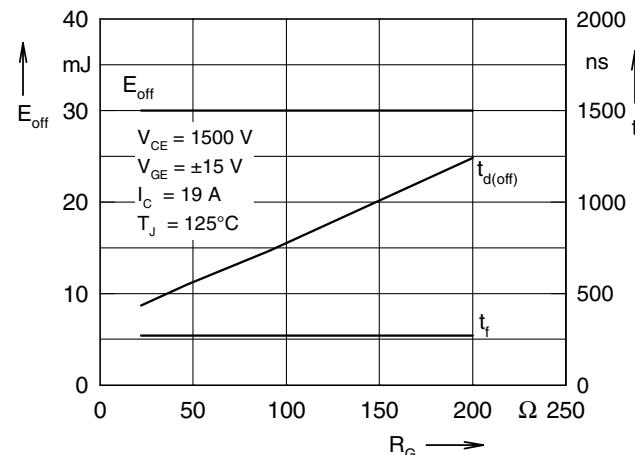


Fig. 10 Typ. turn off energy and switching times versus gate resistor

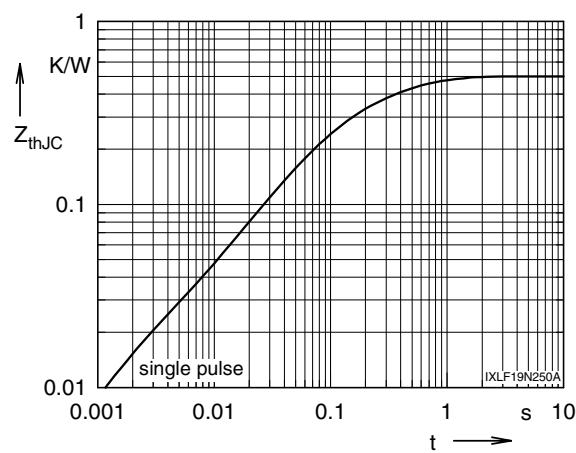


Fig. 11 Typ. transient thermal impedance