



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!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

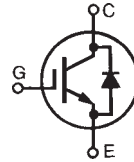


High Voltage, High Gain BIMOSFET™ Monolithic Bipolar MOS Transistor

IXBH 10N170
IXBT 10N170

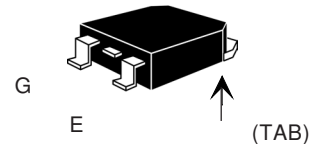
$$\begin{aligned} V_{CES} &= 1700 \text{ V} \\ I_{C25} &= 20 \text{ A} \\ V_{CE(sat)} &= 3.8 \text{ V} \end{aligned}$$

Preliminary Data Sheet

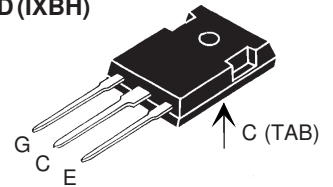


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C}$ to 150°C	1700	V
V_{CGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GE} = 1 \text{ M}\Omega$	1700	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$	20	A
I_{C90}	$T_C = 90^\circ\text{C}$	10	A
I_{CM}	$T_C = 25^\circ\text{C}$, 1 ms	40	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}$, $T_{VJ} = 125^\circ\text{C}$, $R_G = 33 \Omega$ Clamped inductive load	$I_{CM} = 20$ $V_{CES} = 1350$	A V
P_C	$T_C = 25^\circ\text{C}$	140	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 ... +150	$^\circ\text{C}$
Maximum Lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	$^\circ\text{C}$
Maximum Tab temperature for soldering SMD devices for 10 s		260	$^\circ\text{C}$
M_d	Mounting torque (M3) (TO-247)	1.13/10Nm/lb.in.	
Weight	TO-247 AD	6	g
	TO-268	4	g

TO-268 (IXBT)



TO-247 AD (IXBH)



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

Features

- High Blocking Voltage
- JEDEC TO-268 surface and JEDEC TO-247 AD
- Low conduction losses
- High current handling capability
- MOS Gate turn-on
- drive simplicity
- Molding epoxies meet UL 94 V-0 flammability classification

Applications

- AC motor speed control
- Uninterruptible power supplies (UPS)
- Switched-mode and resonant-mode power supplies
- Capacitor discharge circuits

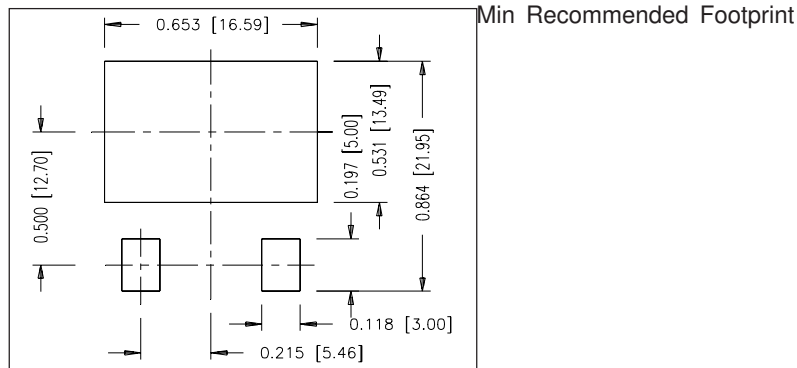
Advantages

- High power density
- Suitable for surface mounting
- Easy to mount with 1 screw,
(isolated mounting screw hole)

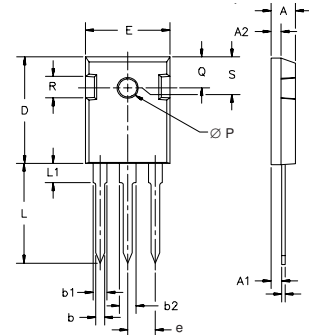
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
BV_{CES}	$I_C = 250 \mu\text{A}$, $V_{GE} = 0 \text{ V}$ Temperature Coefficient	1700	0.10	V %/K
$V_{GE(th)}$	$I_C = 250 \mu\text{A}$, $V_{CE} = V_{GE}$ Temperature Coefficient	3.0	- 0.24	5.0 %/K
I_{CES}	$V_{CE} = 0.8 V_{CES}$, $T_J = 25^\circ\text{C}$ $V_{GE} = 0 \text{ V}$, $T_J = 125^\circ\text{C}$			10 100 μA
I_{GES}	$V_{CE} = 0 \text{ V}$, $V_{GE} = \pm 20 \text{ V}$			$\pm 100 \text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}$, $V_{GE} = 15 \text{ V}$ $T_J = 125^\circ\text{C}$	3.4 4.1	3.8	V V

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	$I_C = I_{C90}; V_{CE} = 10\text{ V}$, Pulse test, $t \leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$	4.0	6.5	S
C_{ies}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		700	pF
C_{oes}			40	pF
C_{res}			12	pF
Q_g	$I_C = I_{C90}; V_{GE} = 15\text{ V}$, $V_{CE} = 0.5\text{ V}_{CES}$		30	nC
Q_{ge}			6	nC
Q_{gc}			10	nC
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$ $I_C = I_{C90}; V_{GE} = 15\text{ V}$ $V_{CE} = 0.8\text{ V}_{CES}; R_G = R_{off} = 56\text{ }\Omega$		35	ns
t_{ri}			28	ns
$t_{d(off)}$			500	ns
t_{fi}			1000	ns
E_{off}			6	mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$ $I_C = I_{C90}; V_{GE} = 15\text{ V}$ $V_{CE} = 0.8\text{ V}_{CES}; R_G = R_{off} = 56\text{ }\Omega$		35	ns
t_{ri}			28	ns
E_{on}			0.7	mJ
$t_{d(off)}$			600	ns
t_{fi}			1200	ns
E_{off}			8	mJ
R_{thJC}				0.89 K/W
R_{thCK}	(TO-247)		0.25	K/W

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
V_F	$I_F = I_{C90}; V_{GE} = 0\text{ V}$, Pulse test, $t \leq 300\text{ }\mu\text{s}$, duty cycle $d \leq 2\%$			3.0 V
I_{RM}	$I_F = I_{C90}; V_{GE} = 0\text{ V}$, $-di_F/dt = 50\text{ A}/\mu\text{s}$ $V_R = 100\text{ V}$		10	A
t_{rr}			360	ns

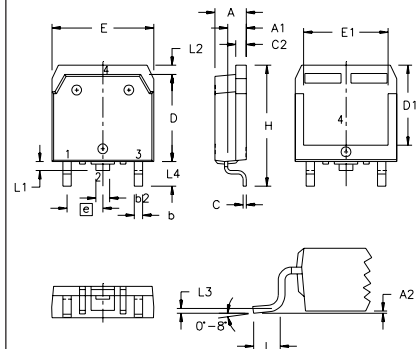


TO-247 AD Outline



Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	4.7	5.3	.185	.209
A ₁	2.2	2.54	.087	.102
A ₂	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b ₁	1.65	2.13	.065	.084
b ₂	2.87	3.12	.113	.123
C	.4	.8	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L ₁		4.50		.177
ØP	3.55	3.65	.140	.144
Q	5.89	6.40	0.232	0.252
R	4.32	5.49	.170	.216
S	6.15	BSC	.242	BSC

TO-268 Outline



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.193	.201	4.90	5.10
A ₁	.106	.114	2.70	2.90
A ₂	.001	.010	0.02	0.25
b	.045	.057	1.15	1.45
b ₂	.075	.083	1.90	2.10
C	.016	.026	0.40	0.65
C ₂	.057	.063	1.45	1.60
D	.543	.551	13.80	14.00
D ₁	.488	.500	12.40	12.70
E	.624	.632	15.85	16.05
E ₁	.524	.535	13.30	13.60
e	.215	BSC	5.45	BSC
H	.736	.752	18.70	19.10
L	.094	.106	2.40	2.70
L ₁	.047	.055	1.20	1.40
L ₂	.039	.045	1.00	1.15
L ₃	.010	BSC	0.25	BSC
L ₄	.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 4,881,106 5,017,508 5,049,961 5,187,117 5,486,715 6,306,728B1 6,259,123B1 6,306,728B1
4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025 6,404,065B1 6,162,665 6,534,343

Fig. 1. Output Characteristics
@ 25 Deg. C

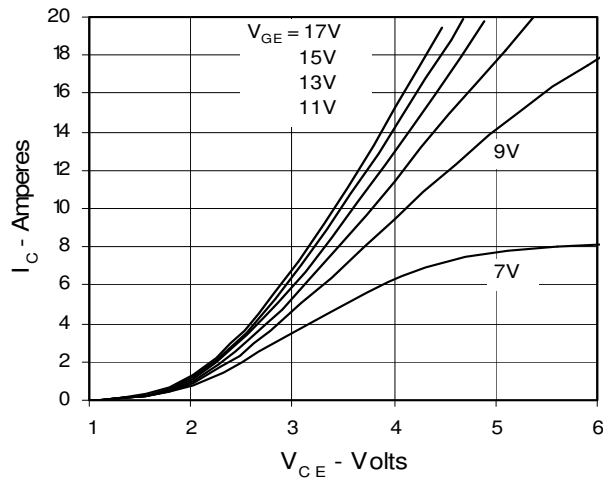


Fig. 2. Extended Output Characteristics
@ 25 deg. C

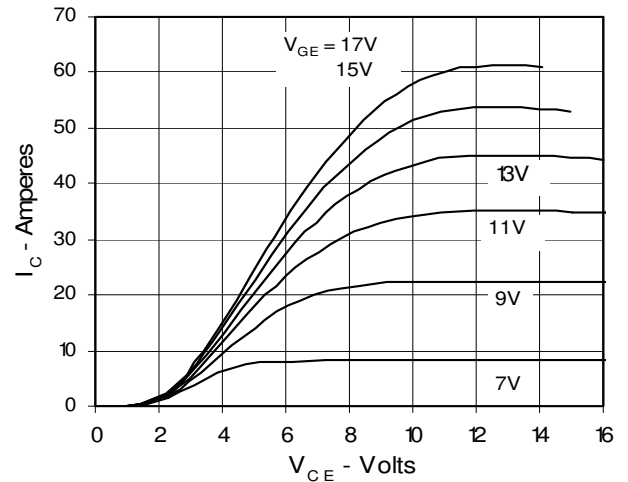


Fig. 3. Output Characteristics
@ 125 Deg. C

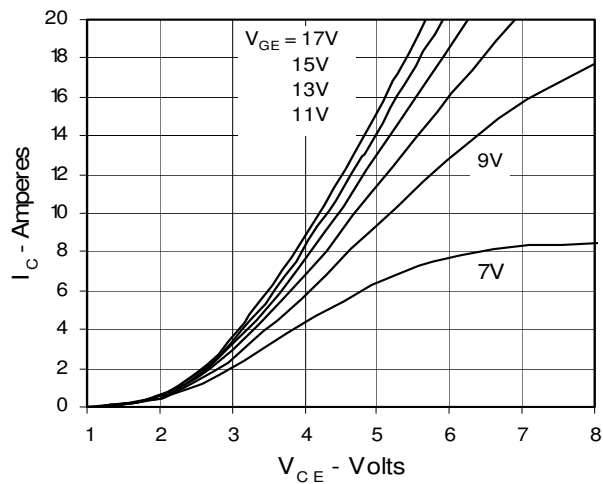


Fig. 4. Temperature Dependence of $V_{CE(sat)}$

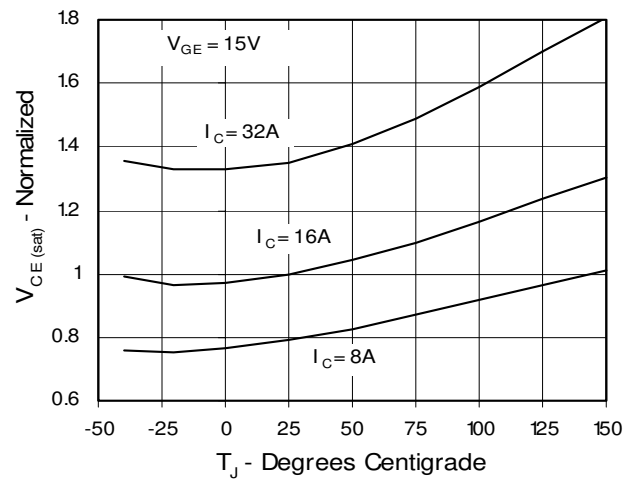


Fig. 5. Collector-to-Emitter Voltage
vs. Gate-to-Emitter voltage

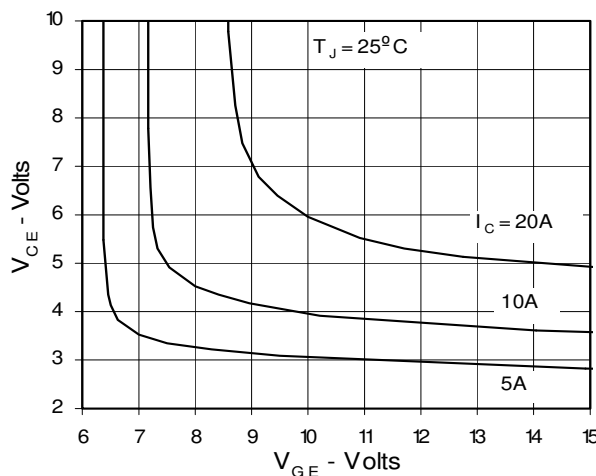


Fig. 6. Input Admittance

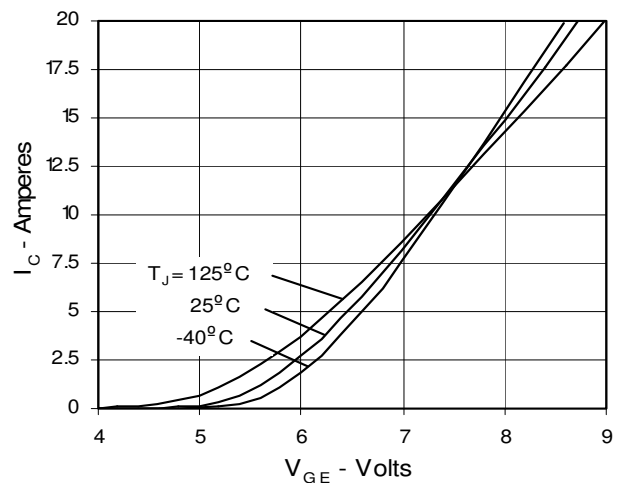
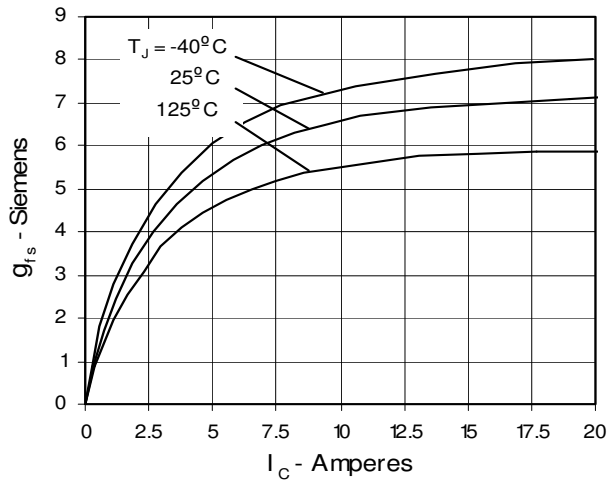
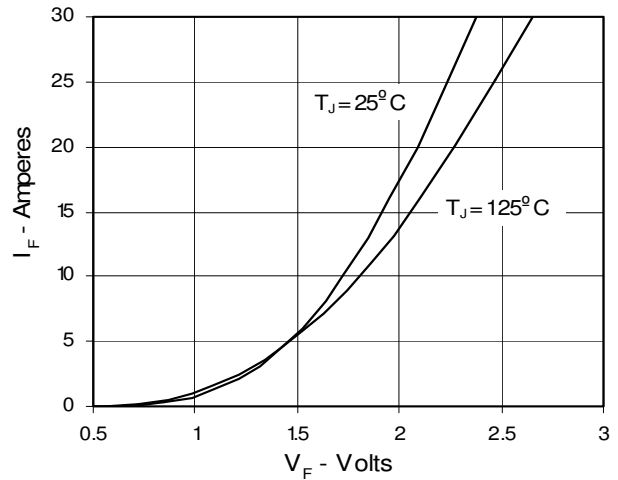
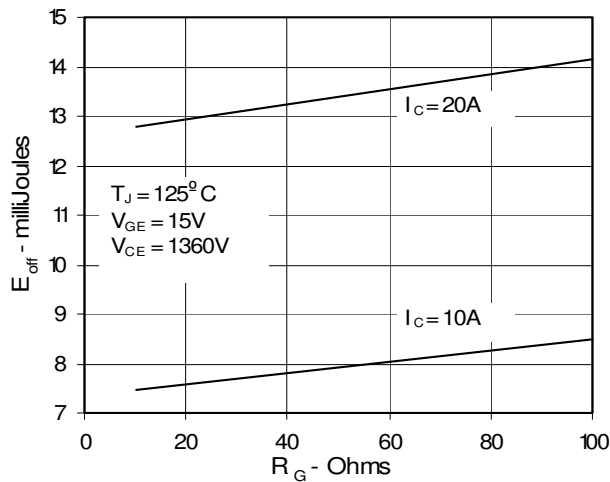
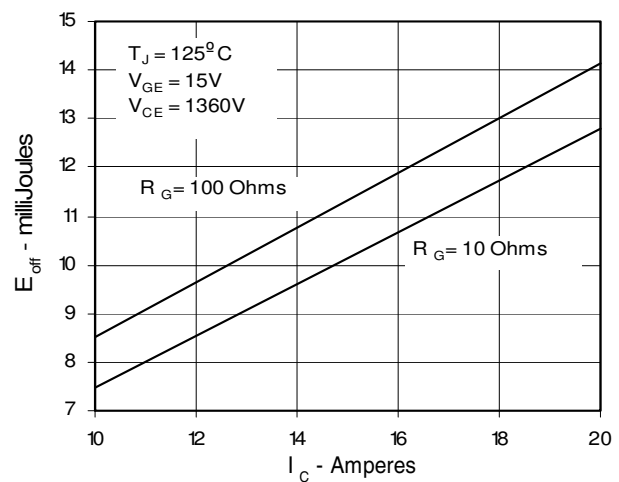
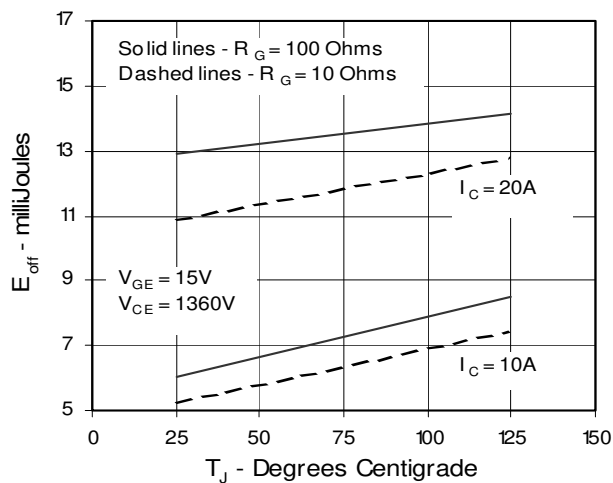
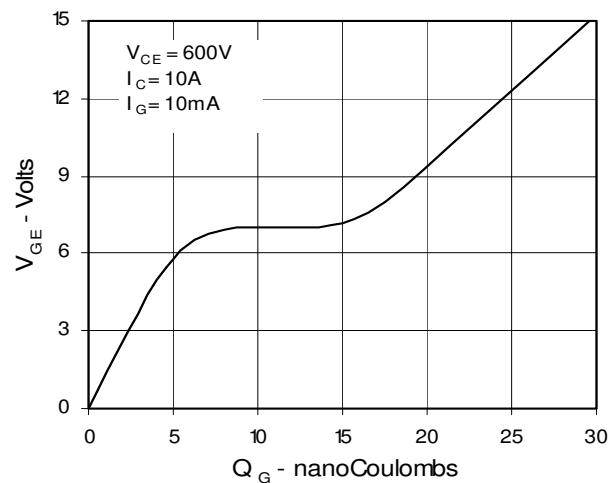


Fig. 7. Transconductance

Fig. 8. Forward Voltage Drop of Intrinsic Diode

Fig. 9. Dependence of E_{off} on R_G

Fig. 10. Dependence of E_{off} on I_C

Fig. 11. Dependence of E_{off} on Temperature

Fig. 12. Gate Charge


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 4,881,106 5,017,508 5,049,961 5,187,117 5,486,715 6,306,728B1 6,259,123B1 6,306,728B1
 4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025 6,404,065B1 6,162,665 6,534,343

Fig. 12. Capacitance

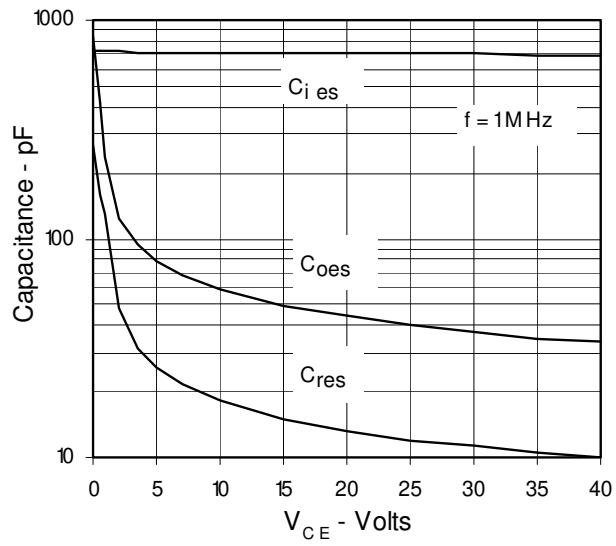


Fig. 13. Maximum Transient Thermal Resistance

