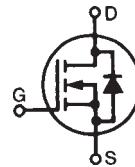


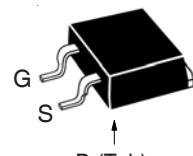
**X-Class HiPerFET™
Power MOSFET**
**IXFA14N85XHV
IXFP14N85X
IXFH14N85X**

N-Channel Enhancement Mode
Avalanche Rated
Fast Intrinsic Diode

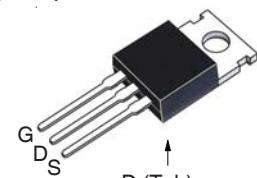


V_{DSS} = 850V
I_{D25} = 14A
R_{DS(on)} ≤ 550mΩ

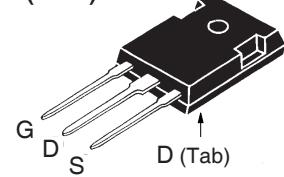
TO-263HV



TO-220 (IXFP)



TO-247 (IXFH)



G = Gate D = Drain
S = Source Tab = Drain

Symbol	Test Conditions	Maximum Ratings		
V _{DSS}	T _J = 25°C to 150°C	850		V
V _{DGR}	T _J = 25°C to 150°C, R _{GS} = 1MΩ	850		V
V _{GSS}	Continuous	±30		V
V _{GSM}	Transient	±40		V
I _{D25}	T _C = 25°C	14		A
I _{DM}	T _C = 25°C, Pulse Width Limited by T _{JM}	35		A
I _A	T _C = 25°C	7		A
E _{AS}	T _C = 25°C	500		mJ
dv/dt	I _S ≤ I _{DM} , V _{DD} ≤ V _{DSS} , T _J ≤ 150°C	50		V/ns
P _D	T _C = 25°C	460		W
T _J		-55 ... +150		°C
T _{JM}		150		°C
T _{stg}		-55 ... +150		°C
T _L	Maximum Lead Temperature for Soldering	300		°C
T _{SOLD}	1.6 mm (0.062in.) from Case for 10s	260		°C
F _c	Mounting Force (TO-263HV)	10..65 / 2.2..14.6		N/lb
M _d	Mounting Torque (TO-220 & TO-247)	1.13 / 10		Nm/lb.in
Weight	TO-263HV	2.5		g
	TO-220	3.0		g
	TO-247	6.0		g

Symbol	Test Conditions (T _J = 25°C, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV _{DSS}	V _{GS} = 0V, I _D = 1mA	850		V
V _{GS(th)}	V _{DS} = V _{GS} , I _D = 1mA	3.5		V
I _{GSS}	V _{GS} = ±30V, V _{DS} = 0V			±100 nA
I _{DSS}	V _{DS} = V _{DSS} , V _{GS} = 0V T _J = 125°C			10 μA 1 mA
R _{DS(on)}	V _{GS} = 10V, I _D = 0.5 • I _{D25} , Note 1			550 mΩ

Features

- International Standard Packages
- High Voltage Package
- Low R_{DS(ON)} and Q_G
- Avalanche Rated
- Low Package Inductance

Advantages

- High Power Density
- Easy to Mount
- Space Savings

Applications

- Switch-Mode and Resonant-Mode Power Supplies
- DC-DC Converters
- PFC Circuits
- AC and DC Motor Drives
- Robotics and Servo Controls

Symbol	Test Conditions (T _J = 25°C, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max
g_{fs}	V _{DS} = 10V, I _D = 0.5 • I _{D25} , Note 1	4.6	7.7	S
R_{Gi}	Gate Input Resistance		1.0	Ω
C_{iss} C_{oss} C_{rss}	V _{GS} = 0V, V _{DS} = 25V, f = 1MHz	1043 1110 17		pF pF pF
Effective Output Capacitance				
C_{o(er)} C_{o(tr)}	Energy related } V _{GS} = 0V Time related } V _{DS} = 0.8 • V _{DSS}	55 177		pF pF
t_{d(on)} t_r t_{d(off)} t_f	V _{GS} = 10V, V _{DS} = 0.5 • V _{DSS} , I _D = 0.5 • I _{D25} R _G = 10Ω (External)	16 30 36 13		ns ns ns ns
Q_{g(on)} Q_{gs} Q_{gd}	V _{GS} = 10V, V _{DS} = 0.5 • V _{DSS} , I _D = 0.5 • I _{D25}	30 7 17		nC nC nC
R_{thJC} R_{thCS}	TO-220 TO-247		0.50 0.21	0.27 °C/W °C/W °C/W

Source-Drain Diode

Symbol	Test Conditions (T _J = 25°C, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max
I_s	V _{GS} = 0V			14 A
I_{SM}	Repetitive, pulse Width Limited by T _{JM}			56 A
V_{SD}	I _F = I _s , V _{GS} = 0V, Note 1		1.4	V
t_{rr} Q_{RM} I_{RM}	I _F = 7A, -di/dt = 100A/μs V _R = 100V	116 0.9 15.5		ns μC A

Note 1. Pulse test, t ≤ 300μs, duty cycle, d ≤ 2%.

PRELIMINARY TECHNICAL INFORMATION

The product presented herein is under development. The Technical Specifications offered are derived from a subjective evaluation of the design, based upon prior knowledge and experience, and constitute a "considered reflection" of the anticipated result. IXYS reserves the right to change limits, test conditions, and dimensions without notice.

IXYS Reserves the Right to Change Limits, Test Conditions, and Dimensions.

IXYS MOSFETs and IGBTs are covered 4,835,592 4,931,844 5,049,961 5,237,481 6,162,665 6,404,065B1 6,683,344 6,727,585 7,005,734B2 7,157,338B2
by one or more of the following U.S. patents: 4,860,072 5,017,508 5,063,307 5,381,025 6,259,123B1 6,534,343 6,710,405B2 6,759,692 7,063,975B2
4,881,106 5,034,796 5,187,117 5,486,715 6,306,728B1 6,583,505 6,710,463 6,771,478B2 7,071,537

Fig. 1. Output Characteristics @ $T_J = 25^\circ\text{C}$

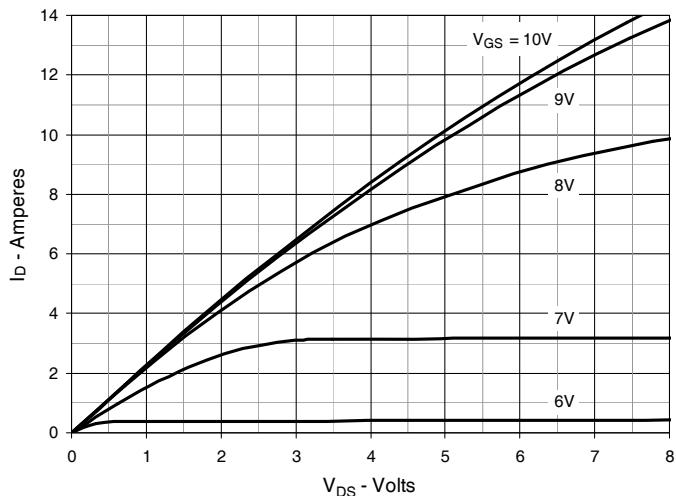


Fig. 2. Extended Output Characteristics @ $T_J = 25^\circ\text{C}$

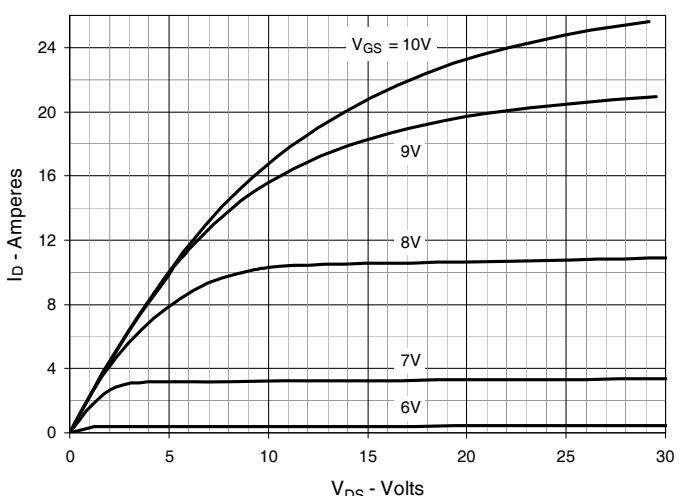


Fig. 3. Output Characteristics @ $T_J = 125^\circ\text{C}$

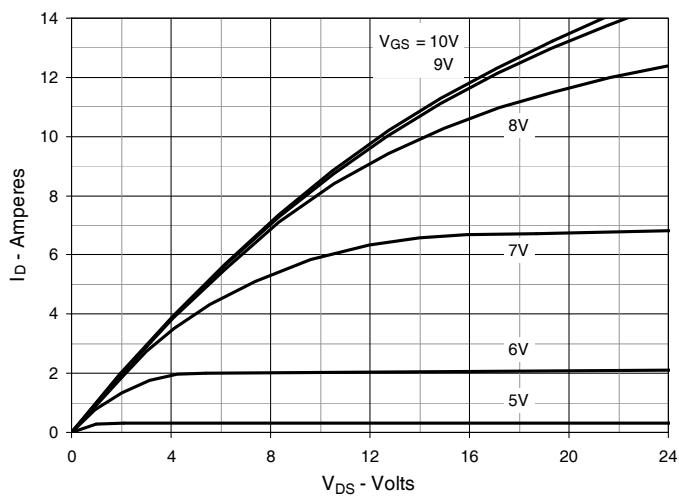


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 7\text{A}$ Value vs. Junction Temperature

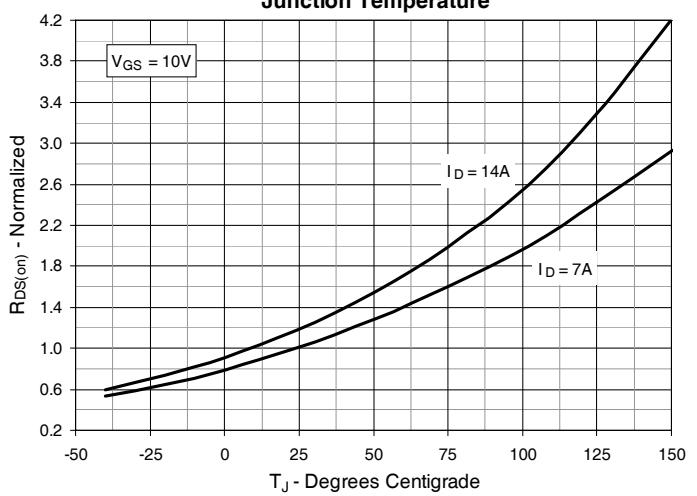


Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 7\text{A}$ Value vs. Drain Current

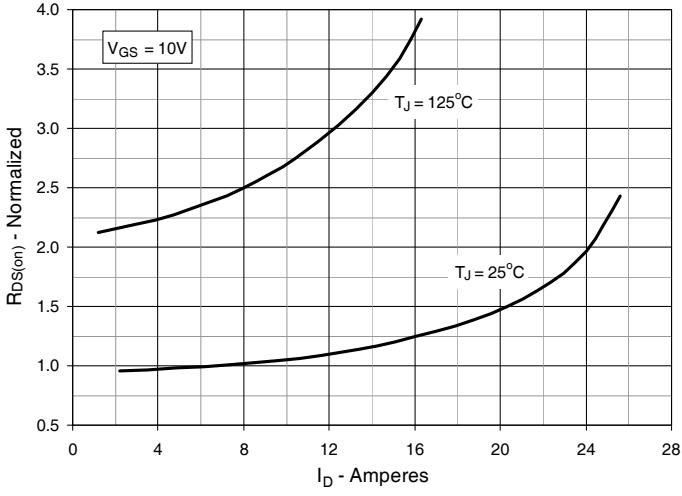


Fig. 6. Normalized Breakdown & Threshold Voltages vs. Junction Temperature

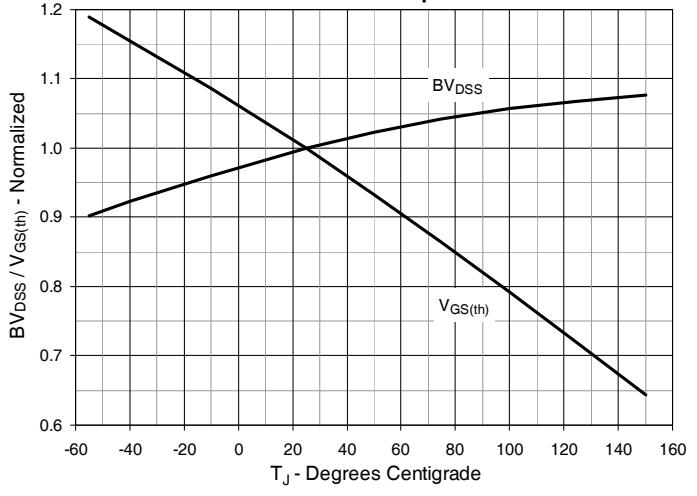


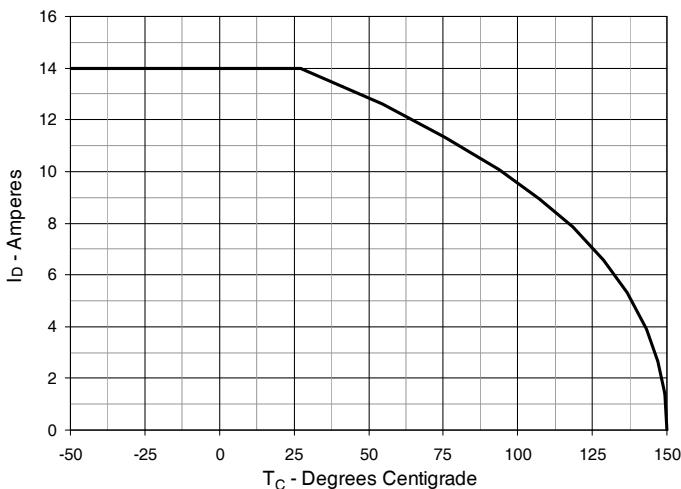
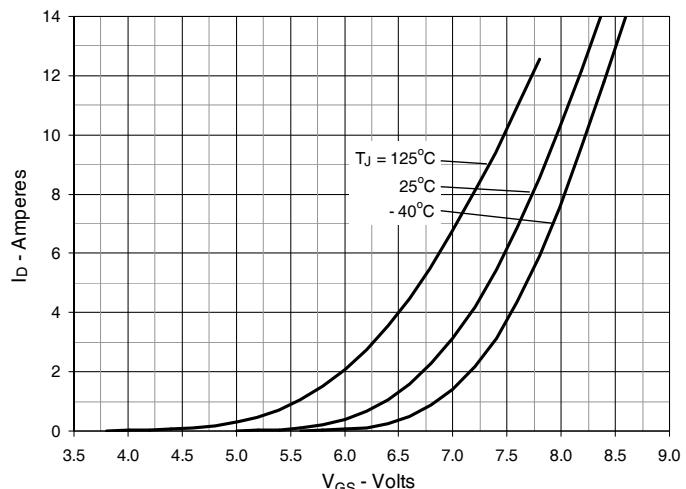
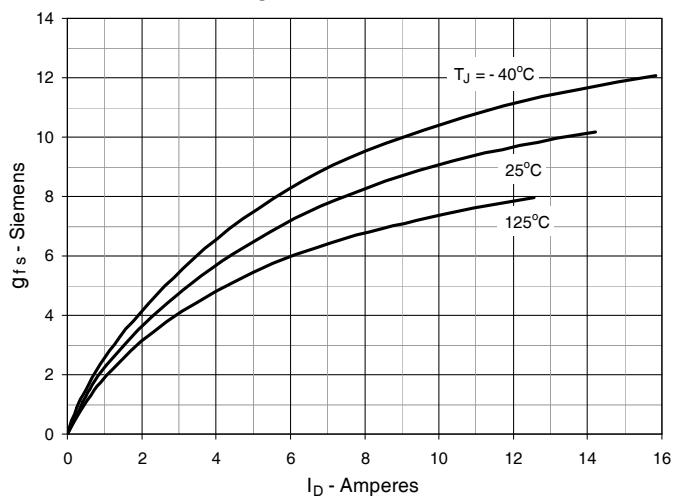
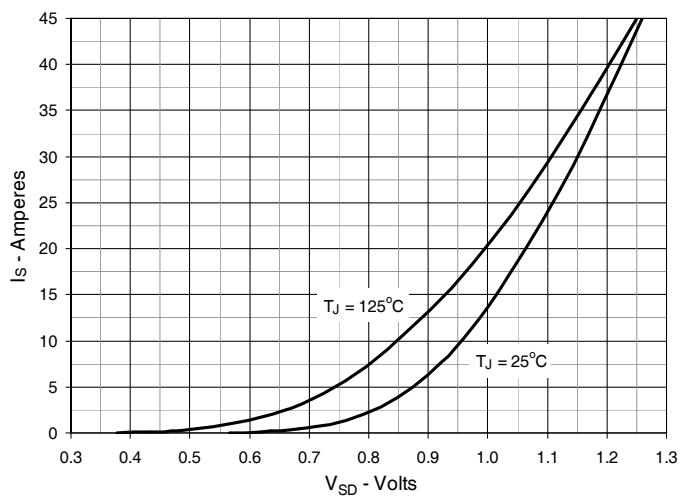
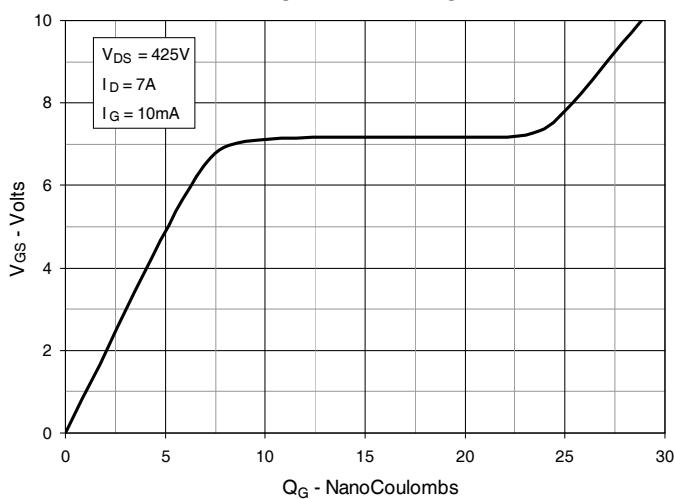
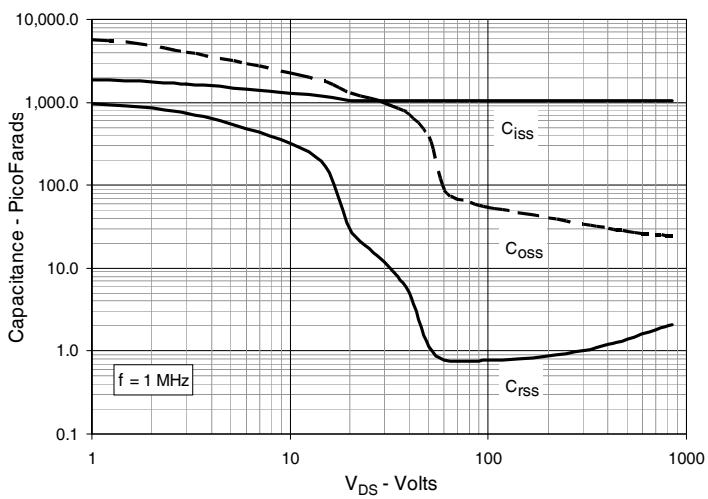
Fig. 7. Maximum Drain Current vs. Case Temperature

Fig. 8. Input Admittance

Fig. 9. Transconductance

Fig. 10. Forward Voltage Drop of Intrinsic Diode

Fig. 11. Gate Charge

Fig. 12. Capacitance


Fig. 13. Output Capacitance Stored Energy

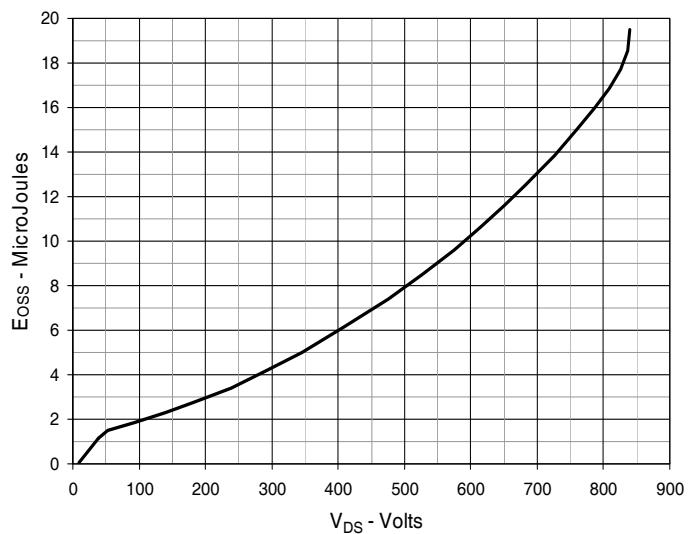


Fig. 14. Forward-Bias Safe Operating Area

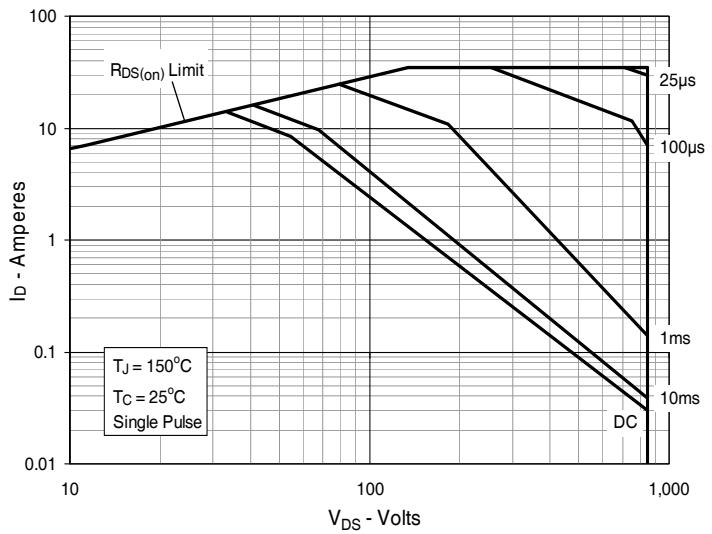
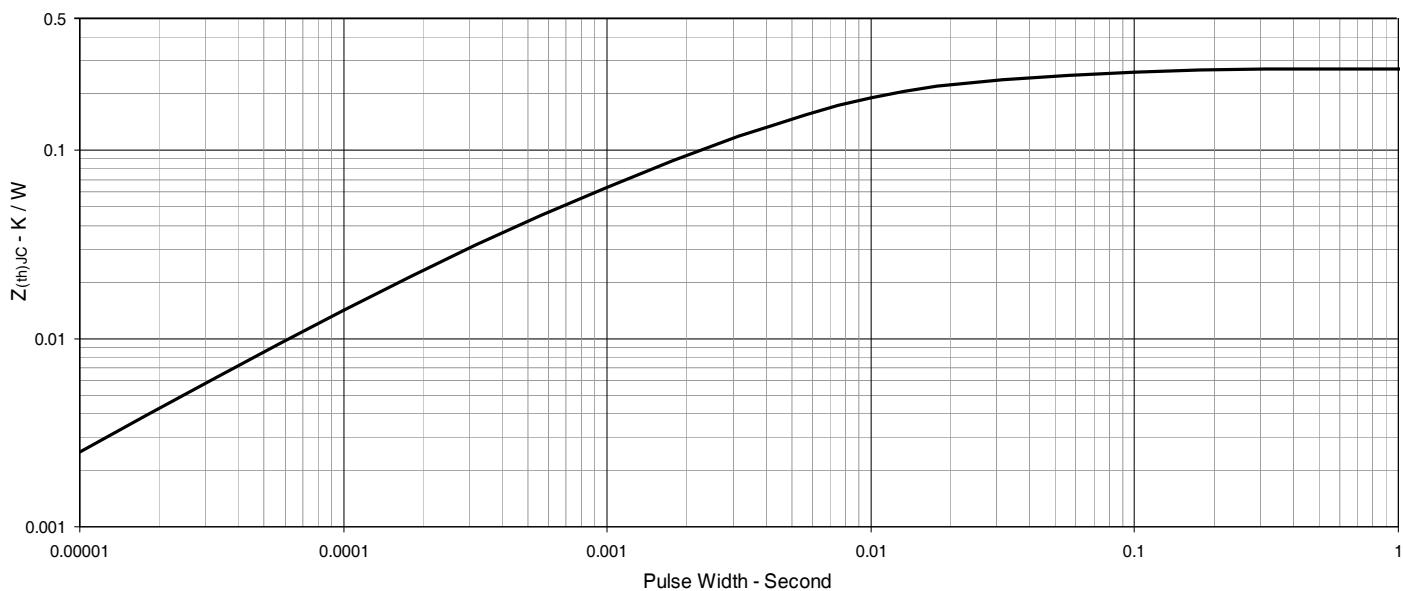
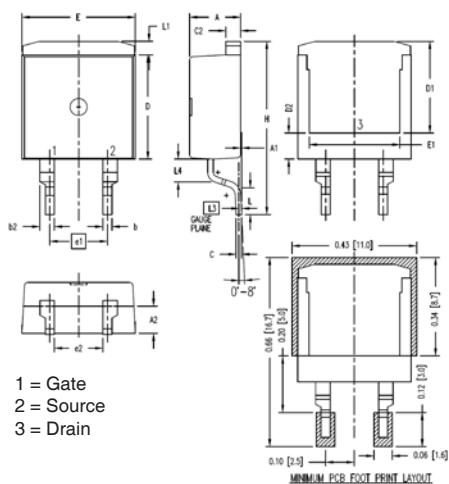
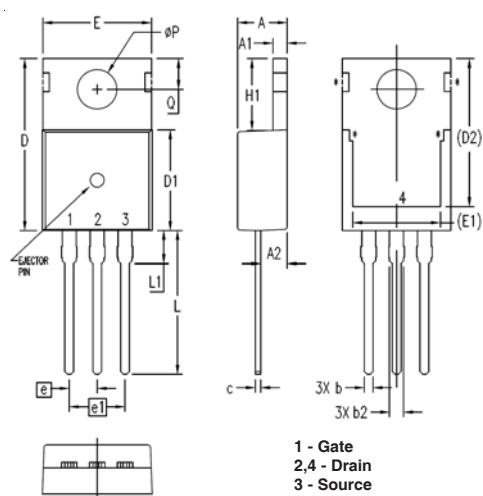


Fig. 15. Maximum Transient Thermal Impedance

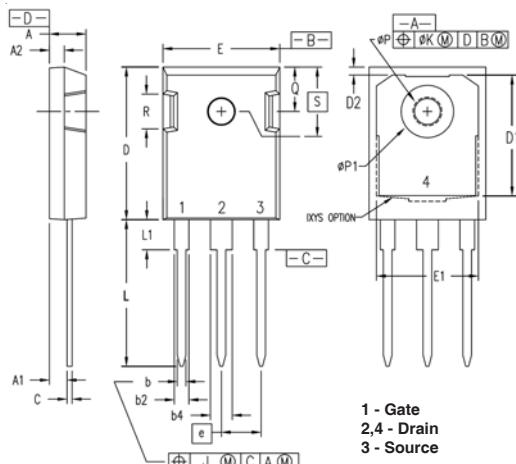


TO-263HV Outline


SYM	INCHES		MILLIMETER	
	MIN	MAX	MIN	MAX
A	.170	.185	4.30	4.70
A1	.000	.008	0.00	0.20
A2	.091	.098	2.30	2.50
b	.028	.035	0.70	0.90
b2	.046	.054	1.18	1.38
C	.018	.024	0.45	0.60
C2	.049	.055	1.25	1.40
D	.354	.370	9.00	9.40
D1	.311	.327	7.90	8.30
D2	.083	.098	2.10	2.50
E	.386	.402	9.80	10.20
E1	.307	.323	7.80	8.20
e1	.200	BSC	5.08	BSC
(e2)	.163	.174	4.13	4.43
H	.591	.614	15.00	15.60
L	.079	.102	2.00	2.60
L1	.039	.055	1.00	1.40
L3	.010	BSC	0.254	BSC
(L4)	.071	.087	1.80	2.20

TO-220 Outline


SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.169	.185	4.30	4.70
A1	.047	.055	1.20	1.40
A2	.079	.106	2.00	2.70
b	.024	.039	0.60	1.00
b2	.045	.057	1.15	1.45
c	.014	.026	0.35	0.65
D	.587	.626	14.90	15.90
D1	.335	.370	8.50	9.40
(D2)	.500	.531	12.70	13.50
E	.382	.406	9.70	10.30
(E1)	.283	.323	7.20	8.20
e	.100	BSC	2.54	BSC
e1	.200	BSC	5.08	BSC
H1	.244	.268	6.20	6.80
L	.492	.547	12.50	13.90
L1	.110	.154	2.80	3.90
ØP	.134	.150	3.40	3.80
Q	.106	.126	2.70	3.20

TO-247 Outline


SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.190	.205	4.83	5.21
A1	.090	.100	2.29	2.54
A2	.075	.085	1.91	2.16
b	.045	.055	1.14	1.40
b2	.075	.087	1.91	2.20
b4	.115	.126	2.92	3.20
C	.024	.031	0.61	0.80
D	.819	.840	20.80	21.34
D1	.650	.690	16.51	17.53
D2	.035	.050	0.89	1.27
E	.620	.635	15.75	16.13
E1	.545	.565	13.84	14.35
e	.215	BSC	5.45	BSC
J	--	.010	--	0.25
K	--	.025	--	0.64
L	.780	.810	19.81	20.57
L1	.150	.170	3.81	4.32
ØP	.140	.144	3.55	3.65
ØP1	.275	.290	6.99	7.37
Q	.220	.244	5.59	6.20
R	.170	.190	4.32	4.83
S	.242	BSC	6.15	BSC



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