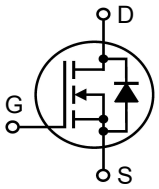
IXYS

High Voltage Power MOSFETs

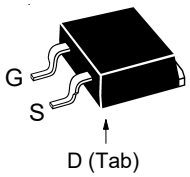
IXTA4N150HV
IXTT4N150HV

V_{DSS} = 1500V
I_{D25} = 4A
$R_{DS(on)}$ ≤ 6Ω

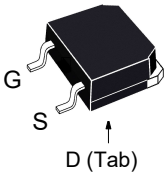
N-Channel Enhancement Mode
Fast Intrinsic Diode



TO-263HV



TO-268HV



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

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C	1500	V
V_{DGR}	T_J = 25°C to 150°C, R_{GS} = 1MΩ	1500	V
V_{GSS}	Continuous	±30	V
V_{GSM}	Transient	±40	V
I_{D25}	T_C = 25°C	4	A
I_{DM}	T_C = 25°C, Pulse Width Limited by T_{JM}	12	A
I_A	T_C = 25°C	4	A
E_{AS}	T_C = 25°C	350	mJ
dv/dt	$I_S \le I_{DM}$, $V_{DD} \le V_{DSS}$, $T_J \le 150°C$	5	V/ns
P_D	T_C = 25°C	280	W
T_J		- 55 ... +150	°C
T_{JM}		150	°C
T_{stg}		- 55 ... +150	°C
T_{SOLD}	Plastic Body for 10s	260	°C
Weight	TO-263	2.5	g
	TO-268	4.0	g

Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
BV_{DSS}	V_{GS} = 0V, I_D = 250μA	1500			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = 250μA	2.5		5.0	V
I_{GSS}	V_{GS} = ±30V, V_{DS} = 0V			±100	nA
I_{DSS}	$V_{DS} = V_{DSS}$, V_{GS} = 0V			10	μA
	T_J = 125°C			100	μA
$R_{DS(on)}$	V_{GS} = 10V, $I_D = 0.5 \bullet I_{D25}$, Note 1			6	Ω

Features

- High Blocking Voltage
- High Voltage Package
- Fast Intrinsic Diode
- Low Package Inductance

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

- High Voltage Power Supplies
- Capacitor Discharge
- Pulse Circuits

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Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
g_{fs}	V_{DS} = 20V, I_D = 0.5 • I_{D25}, Note 1	2.8	4.6		S
C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		1576		pF
C_{oss}			105		pF
C_{rss}			35		pF
$t_{d(on)}$	**Resistive Switching Times**		19		ns
t_r	V_{GS} = 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25}		23		ns
$t_{d(off)}$	R_G = 5Ω (External)		42		ns
t_f			22		ns
$Q_{g(on)}$	V_{GS} = 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25}		44.5		nC
Q_{gs}			7.7		nC
Q_{gd}			21.7		nC
R_{thJC}				0.45	°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			4	A
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}			16	A
V_{SD}	I_F = I_S, V_{GS} = 0V, Note 1			1.3	V
t_{rr}	I_F = 2A, -di/dt = 100A/μs		0.9		μs
I_{RM}	V_R = 100V, V_{GS} = 0V		15.0		A
Q_{RM}			6.7		μC

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

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

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

Fig. 1. Output Characteristics @ T_J = 25ºC

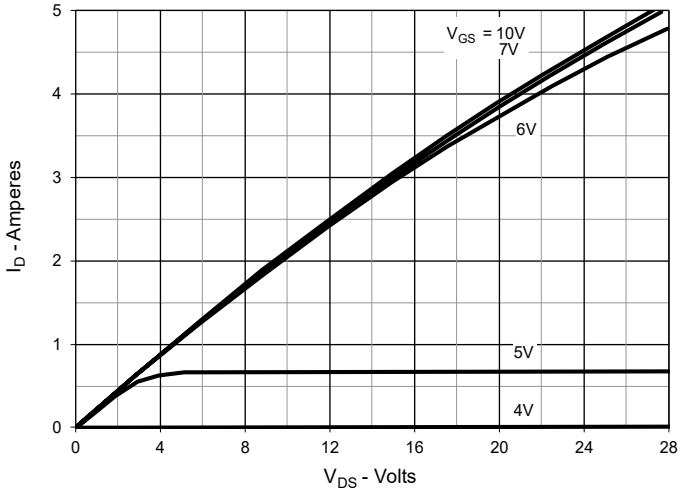


Fig. 2. Output Characteristics @ T_J = 125ºC

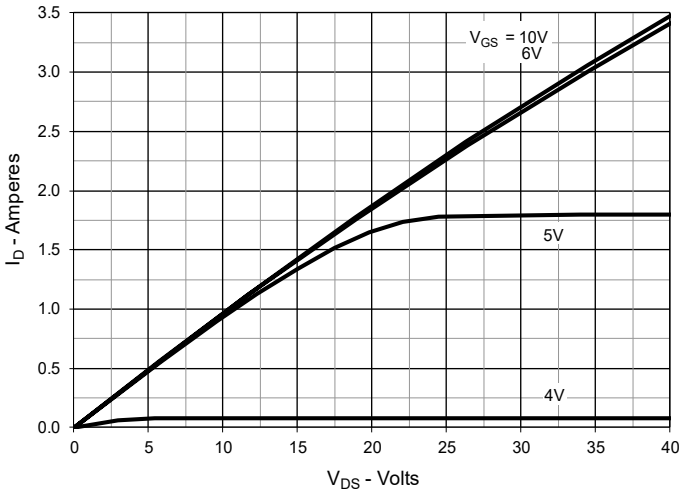


Fig. 3. $R_{DS(on)}$ Normalized to I_D = 2A Value vs. Junction Temperature

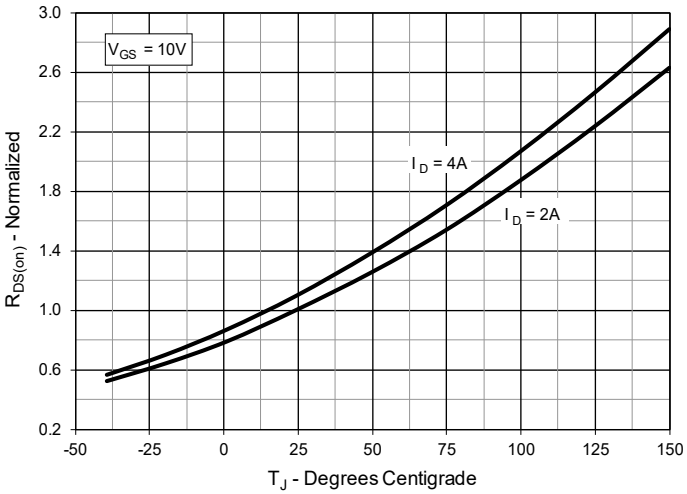


Fig. 4. $R_{DS(on)}$ Normalized to I_D = 2A Value vs. Drain Current

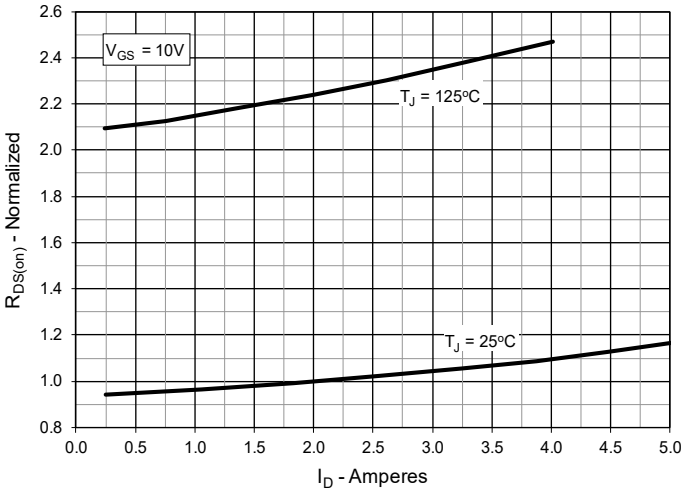


Fig. 5. Maximum Drain Current vs. Case Temperature

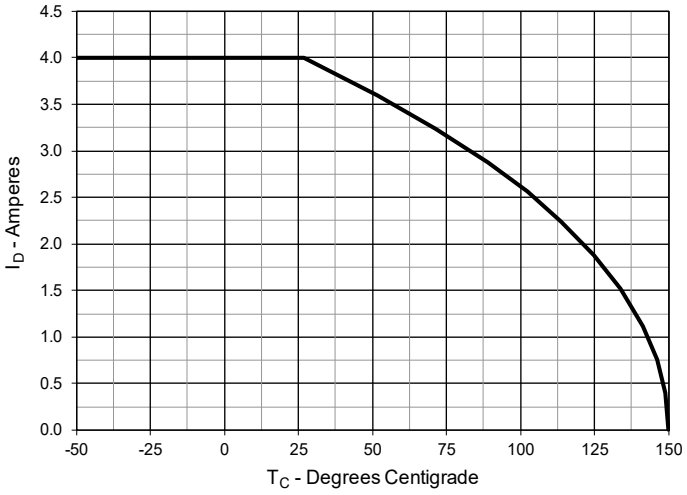
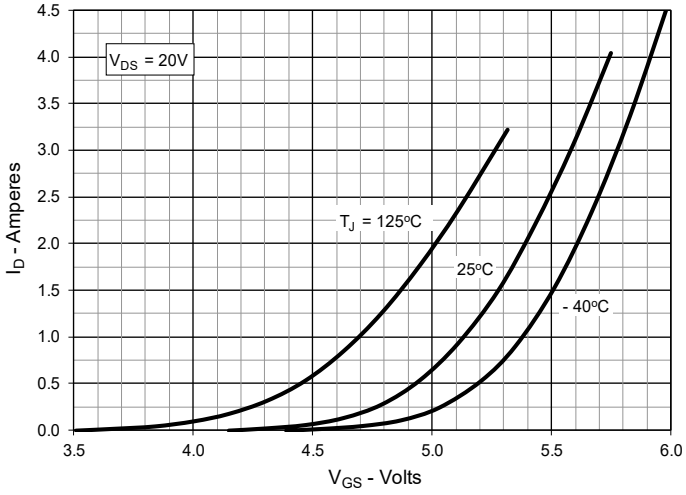


Fig. 6. Input Admittance



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Fig. 7. Transconductance

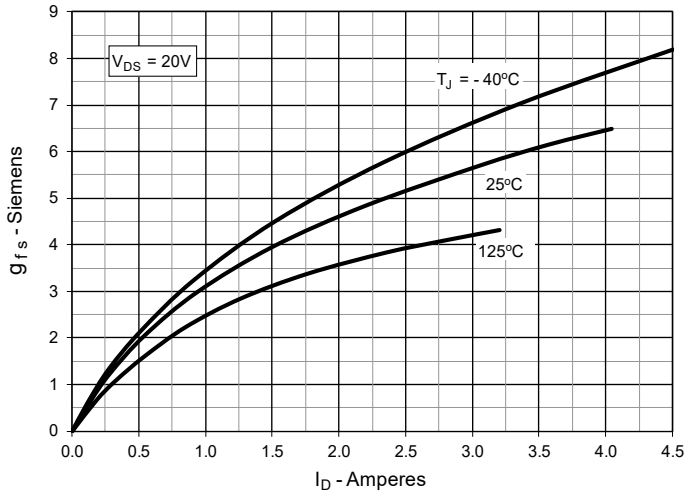


Fig. 8. Forward Voltage Drop of Intrinsic Diode

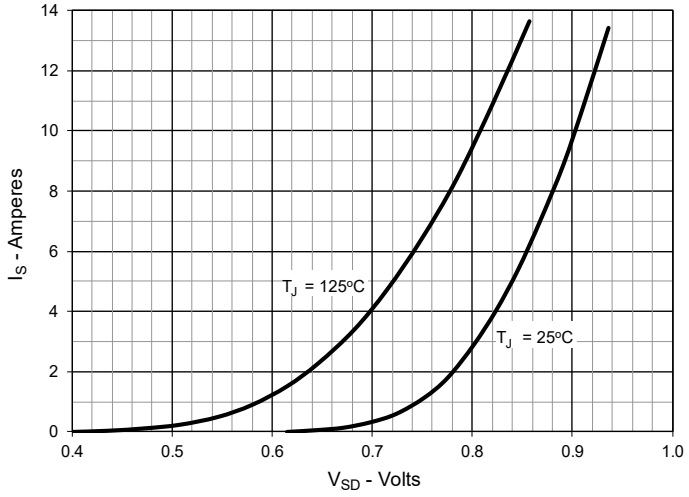


Fig. 9. Gate Charge

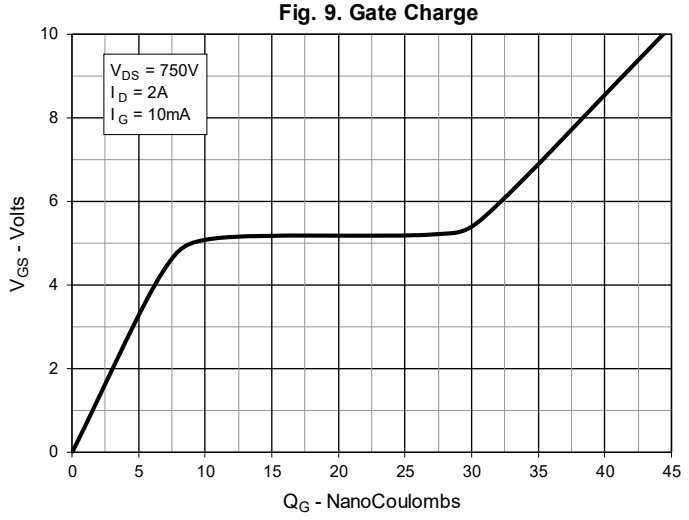


Fig. 10. Capacitance

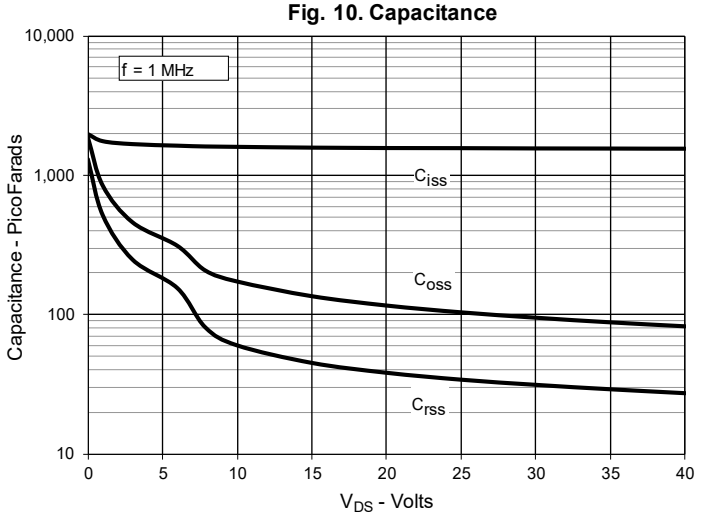


Fig. 11. Breakdown and Threshold Voltages vs. Junction Temperature

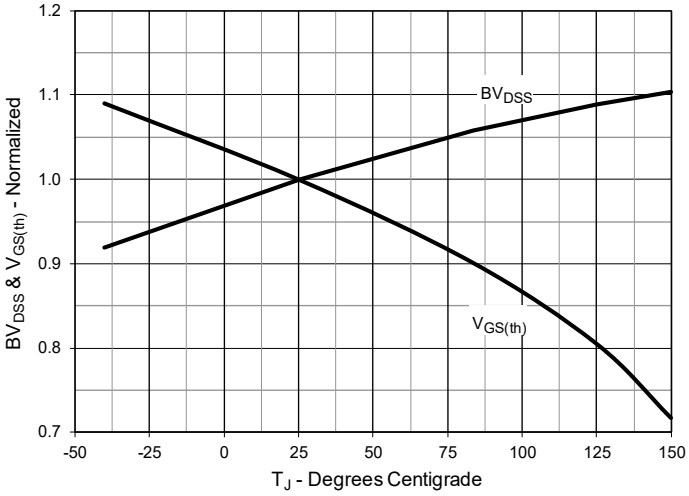
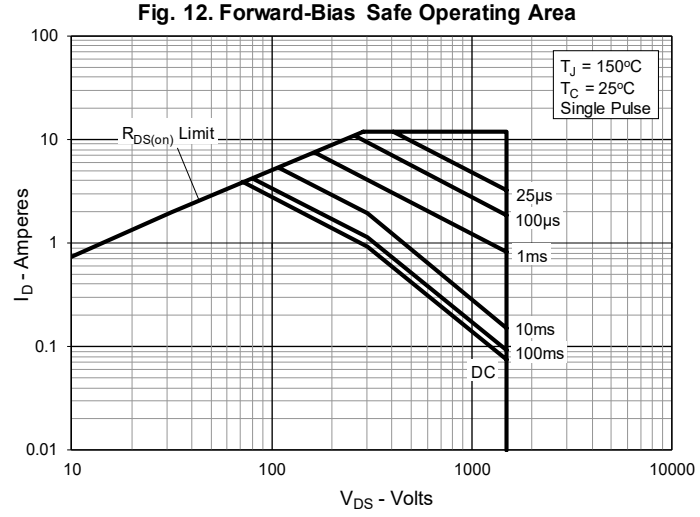
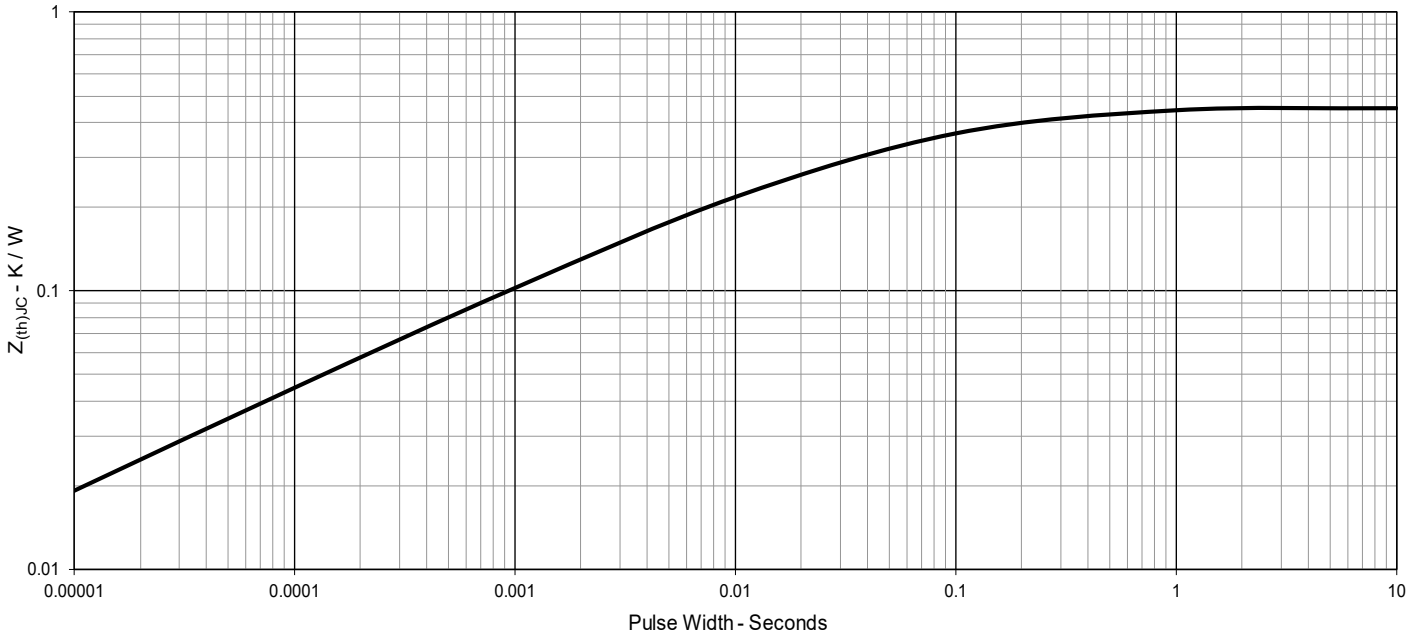


Fig. 12. Forward-Bias Safe Operating Area



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

Fig. 13. Maximum Transient Thermal Impedance

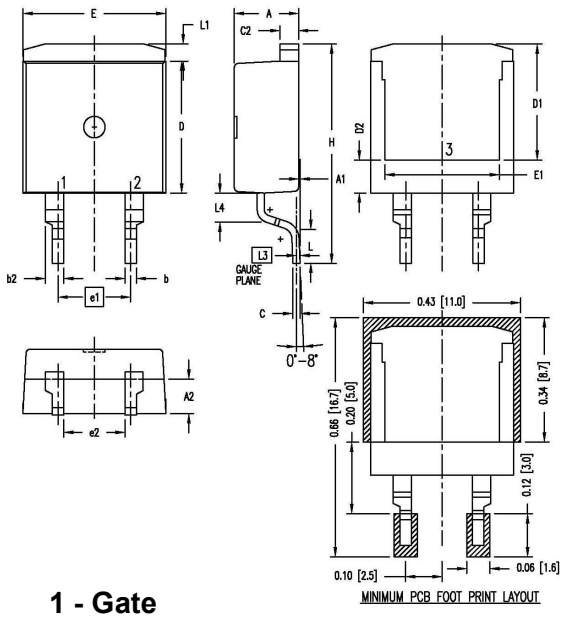


IXYS
A Littelfuse Technology

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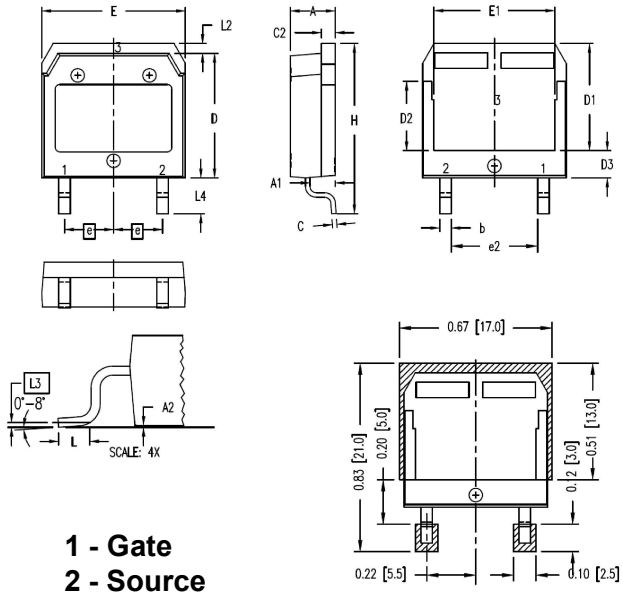
TO-263HV Outline



1 - Gate
2 - Source
3 - Drain

SYM	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.170	0.185	4.30	4.70
A1	0.000	0.008	0.00	0.20
A2	0.091	0.098	2.30	2.50
b	0.028	0.035	0.70	0.90
b2	0.046	0.054	1.18	1.38
c	0.018	0.024	0.45	0.60
C2	0.049	0.055	1.25	1.40
D	0.354	0.370	9.00	9.40
D1	0.311	0.327	7.90	8.30
D2	0.083	0.098	2.10	2.50
E	0.386	0.402	9.80	10.20
E1	0.307	0.323	7.80	8.20
e1	0.200	BSC	5.08	BSC
e (2)	0.163	0.174	4.13	4.43
H	0.591	0.614	15.00	15.60
L	0.079	0.102	2.00	2.60
L1	0.039	0.055	1.00	1.40
L3	0.100	BSC	0.254	BSC
L4	0.071	0.087	1.80	2.20

TO-268HV Outline



1 - Gate
2 - Source
3 - Drain

SYM	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.193	0.201	4.90	5.10
A1	0.106	0.114	2.70	2.90
A2	0.001	0.010	0.02	0.25
b	0.045	0.057	1.15	1.45
C	0.016	0.026	0.40	0.65
C2	0.057	0.063	1.45	1.60
D	0.543	0.551	13.80	14.00
D1	0.465	0.476	11.80	12.10
D2	0.295	0.307	7.50	7.80
D3	0.114	0.126	2.90	3.20
E	0.624	0.632	15.85	16.05
E1	0.524	0.535	13.30	13.60
e	0.215	BSC	5.45	BSC
e (2)	0.374	0.386	9.50	9.80
H	0.736	0.752	18.70	19.10
L	0.067	0.079	1.70	2.00
L2	0.039	0.045	1.00	1.15
L3	0.010	BSC	0.25	BSC
L4	0.150	0.161	3.80	4.10

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