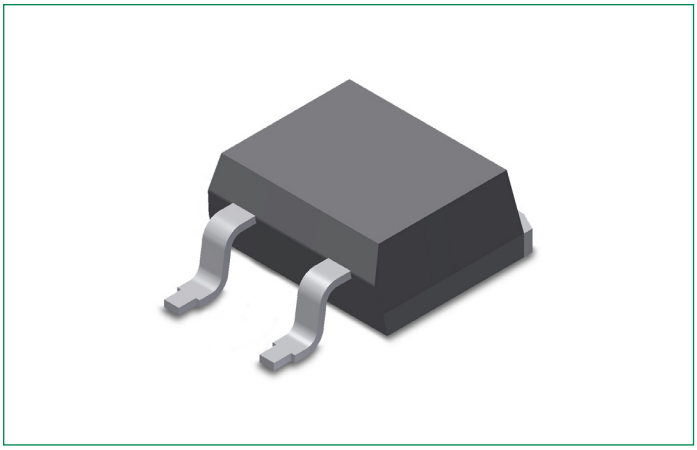
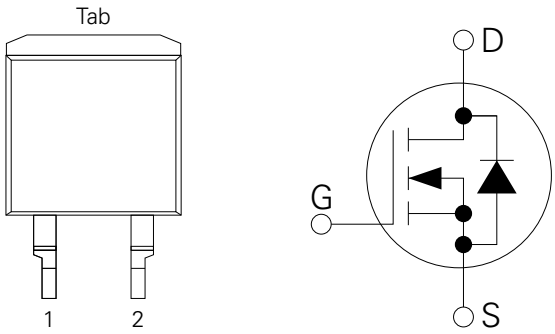
IXTA3N150HV

1500 V, 3 A, 7.3 Ω, High Voltage Power MOSFET

N-Channel Enhancement Mode, Avalanche Rated



Pinout Diagram (TO-263HV)



G/1: Gate; **D/Tab**: Drain; **S/2**: Source

Features

- High voltage package
- Fast intrinsic diode
- Avalanche rated
- Molding epoxies meet UL 94 V-0
- Flammability classification
- High blocking voltage

Advantages

- Easy to mount
- Space savings
- High power density

Applications

- High voltage power supplies
- Capacitor discharge applications
- Pulse circuits

Product Summary

Characteristic	Value	Unit
V_{DSS}	1500	V
I_{D25}	3	A
$R_{DS(on)}$	7.3	Ω

Revised: A004/28/2026

Maximum Ratings (T_c = 25 °C unless otherwise specified)

Symbol	Characteristics	Conditions	Value	Unit
V_{DSS}	Drain-source voltage	T_{vj} = 25 °C to 150 °C	1500	V
V_{GSS}	Gate-source voltage	Continuous	±30	V
V_{GSM}	Transient gate-source voltage	Transient	±40	V
I_{D25}	Drain current	T_c = 25 °C	3	A
I_{DM}	Peak drain current	T_c = 25 °C, Pulse width limited by $T_{vj(max)}$	9	A
I_{AS}	Single pulse avalanche current	T_c = 25 °C	3	A
E_{AS}	Single pulse avalanche energy	–	250	mJ
dv/dt	Source-drain diode dv/dt capability	$I_S \le I_{DM}$, $V_{DD} \le V_{DSS}$, $T_{vj} \le$ 150 °C	5	V/ns
P_{tot}	Total power dissipation	T_c = 25 °C	250	W
T_{vj}	Operating junction temperature range	–	–55 to +150	°C
$T_{vj(max)}$	Maximum virtual junction temperature	–	150	°C
T_{stg}	Storage temperature range	–	–55 to +150	°C
T_{sld}	Soldering temperature	Plastic Body for 10s	260	°C
F_c	Mounting force	-	10..65 / 2.2..14.6	Nm / lb.in
G	Package weight	–	2.5	g

Thermal Characteristics

Symbol	Characteristics	Value			Unit
		Min.	Typ.	Max.	
$R_{th(j-c)}$	Thermal resistance, junction to case	–	–	0.50	K/W

Electrical Characteristics - Static (T_c = 25 °C unless otherwise specified)

Symbol	Characteristics	Conditions		Value			Unit
				Min.	Typ.	Max.	
$V_{(BR)DSS}$	Drain-source breakdown voltage	V_{GS} = 0 V, I_D = 250 µA		1500	–	–	V
$V_{GS(th)}$	Gate-source threshold voltage	$V_{DS} = V_{GS}$, I_D = 250 µA		2.5	–	5.0	V
I_{GSS}	Gate leakage current	V_{GS} = ±30 V, V_{DS} = 0 V		–	–	±100	nA
I_{DSS}	Drain-source leakage current	$V_{DS} = V_{DSS}$, V_{GS} = 0 V	–	–	–	10	µA
			T_{vj} = 125 °C	–	–	250	
$R_{DS(on)}$	Drain-source on-state resistance [1]	V_{GS} = 10 V, I_D = 0.5 · I_{D25}		–	–	7.3	Ω

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

Electrical Characteristics – Dynamic (T_{vj} = 25 °C unless otherwise specified)

Symbol	Characteristics	Conditions	Value			Unit
			Min.	Typ.	Max.	
g_{fs}	Transconductance [1]	V_{DS} = 20 V, I_D = 0.5 · I_{D25}	2.2	3.6	–	S
C_{iss}	Input capacitance	V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz	–	1375	–	pF
C_{oss}	Output capacitance		–	90	–	
C_{rss}	Reverse transfer capacitance		–	30	–	
$t_{d(on)}$	Turn-on delay time	Resistive Switching Times V_{GS}= 10 V, V_{DS} = 0.5 · V_{DSS}, I_D = 0.5 · I_{D25}, $R_{G(ext)}$ = 10 Ω	–	19	–	ns
t_r	Rise time		–	21	–	
$t_{d(off)}$	Turn-off delay time		–	42	–	
t_f	Fall time		–	25	–	
Q_G	Total gate charge	V_{GS} = 10 V, V_{DS} = 0.5 · V_{DSS}, I_D = 0.5 · I_{D25}	–	38.6	–	nC
Q_{GS}	Gate-source charge		–	6.5	–	
Q_{GD}	Gate-drain charge		–	19	–	

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

Diode Characteristics (T_{vj} = 25 °C unless otherwise specified)

Symbol	Characteristics	Conditions	Value			Unit
			Min.	Typ.	Max.	
I_S	Diode forward current (continuous)	V_{GS} = 0 V	–	–	3	A
I_{SM}	Diode pulse current	Repetitive, pulse width limited by T_{JM}	–	–	12	A
V_{SD}	Diode forward voltage [1]	I_F = I_S, V_{GS} = 0 V	–	–	1.3	V
t_{rr}	Reverse recovery time	I_F = I_D= 0.5 · I_{D25}, –di/dt = 100 A/µs, V_R = 100 V, V_{GS} = 0 V	–	0.9	–	µs
I_{rrm}	Peak reverse recovery current		–	15.0	–	A
Q_{rr}	Reverse recovery charge		–	6.7	–	µC

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

Characteristic Curves

Fig. 1. Output Characteristics @ T_{vj} = 25 °C

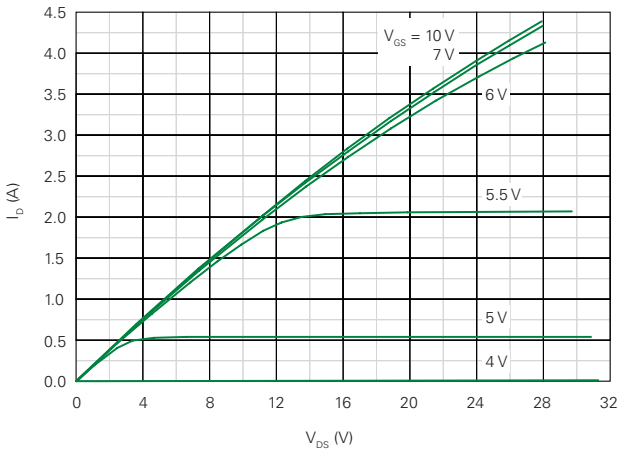


Fig. 2. Output Characteristics @ T_{vj} = 125 °C

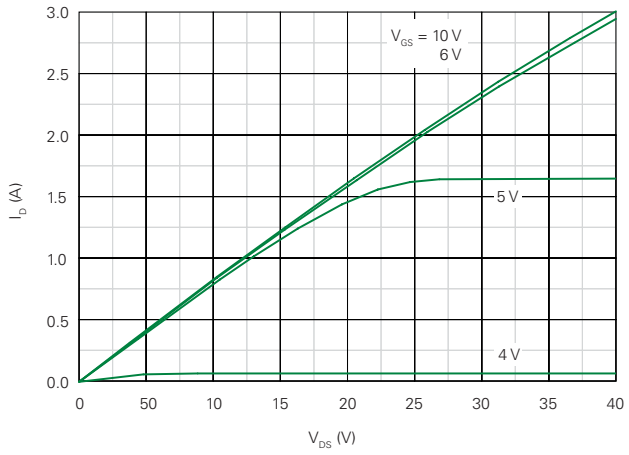


Fig. 3. $R_{DS(on)}$ Normalized to I_D = 1.5 A Value vs. Junction Temperature

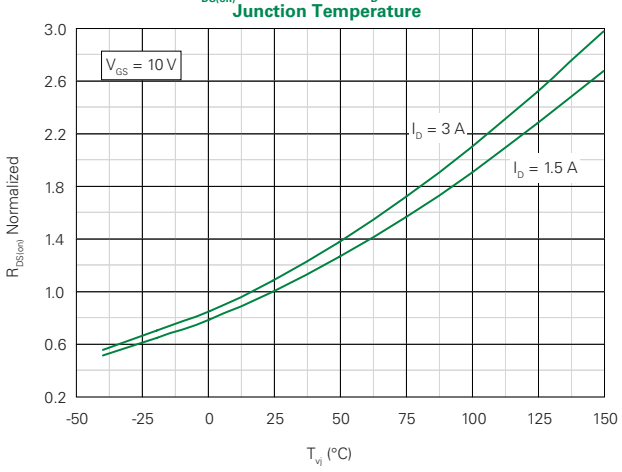


Fig. 4. $R_{DS(on)}$ Normalized to I_D = 1.5 A Value vs. Drain Current

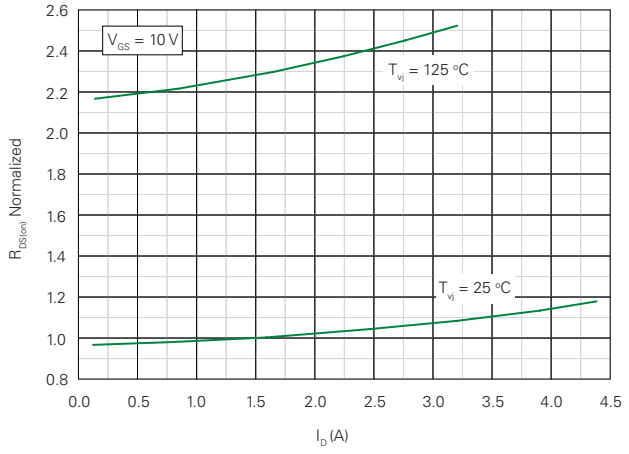


Fig. 5. Maximum Drain Current vs. Case Temperature

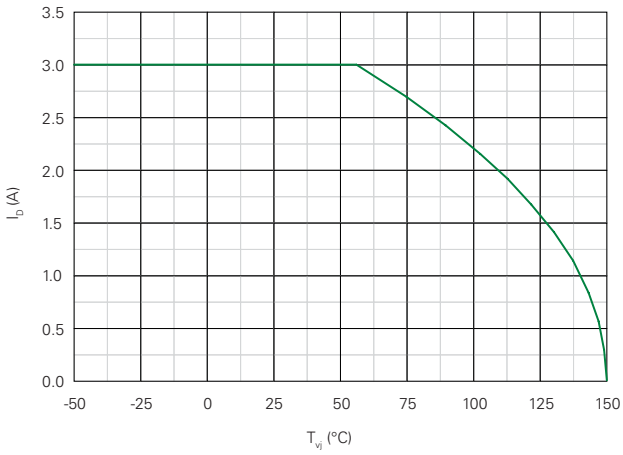
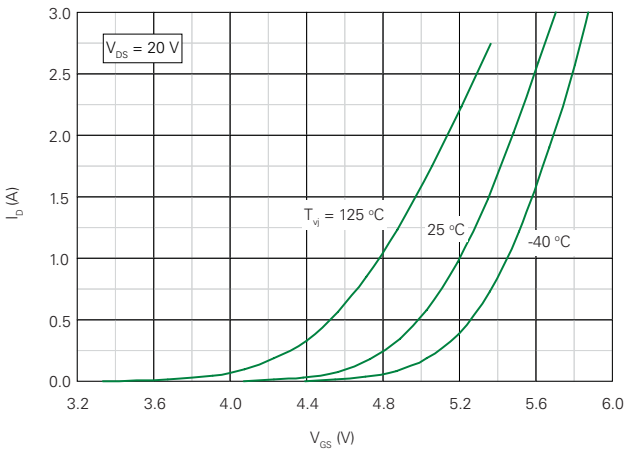


Fig. 6. Input Admittance



Characteristic Curves

Fig. 7. Transconductance

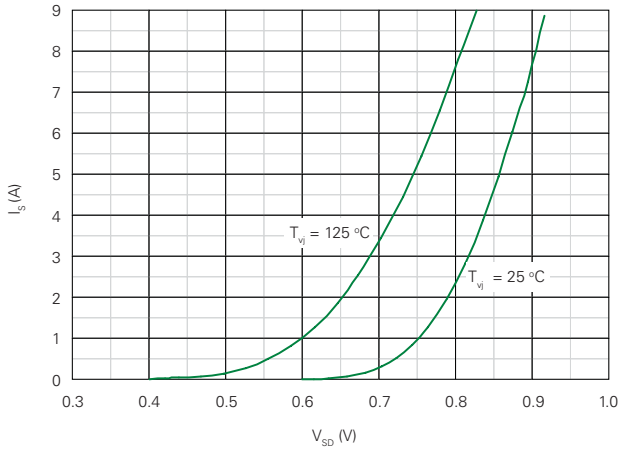


Fig. 8. Forward Voltage Drop of Intrinsic Diode

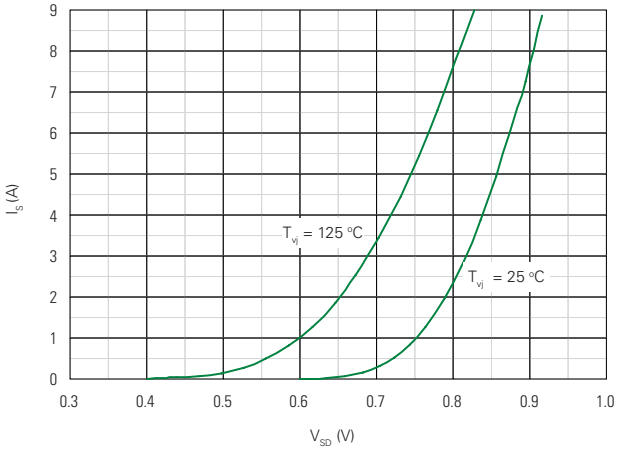


Fig. 9. Gate Charge

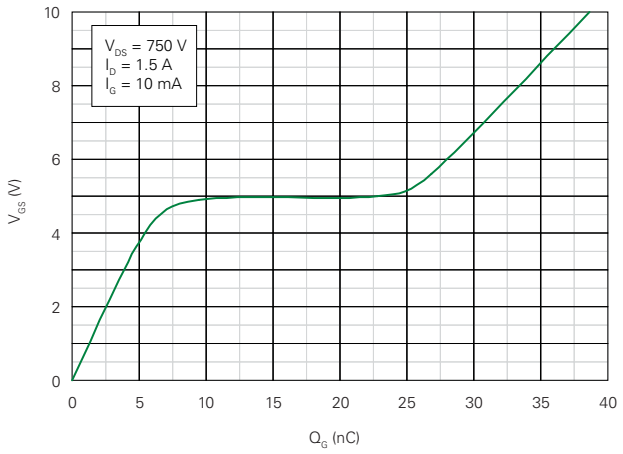


Fig. 10. Capacitance

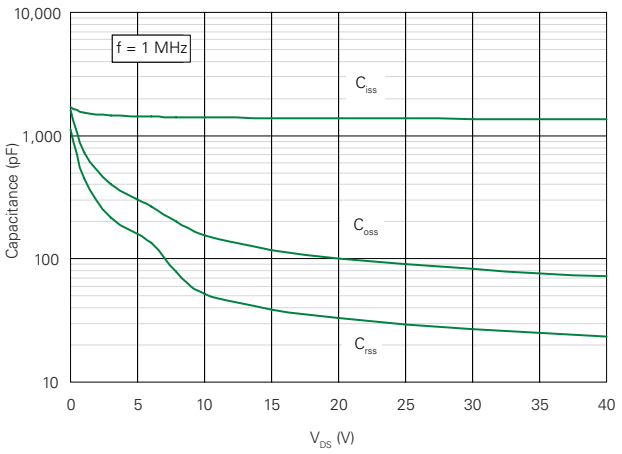


Fig. 11. Maximum Transient Thermal Impedance

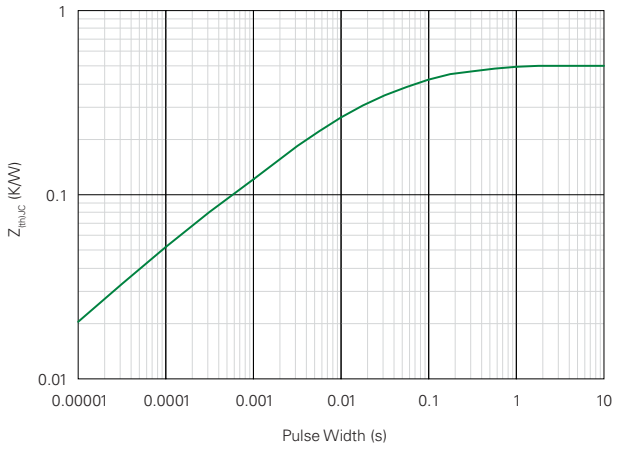
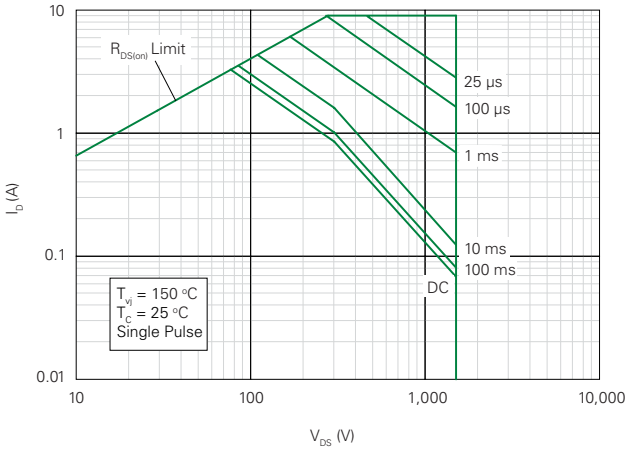
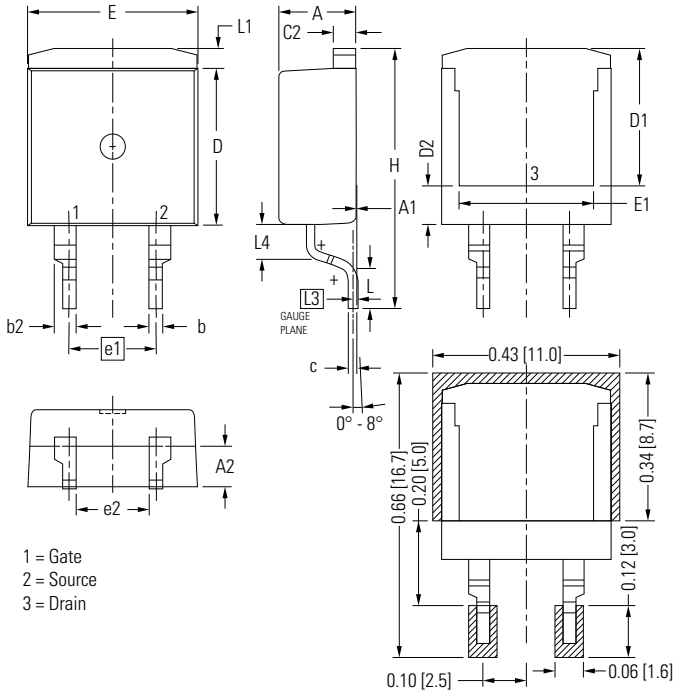


Fig. 12. Forward-Bias Safe Operating Area



Part Outline Drawing (TO-263HV)



1 = Gate
2 = Source
3 = Drain

MINIMUM PCB FOOT PRINT LAYOUT

Symbol	Inches		Millimeters	
	Min.	Max.	Min.	Max
A	0.170	0.185	4.30	4.70
A1	0.000	0.008	2.00	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
e	0.200 BSC		5.08 BSC	
(e2)	0.163	0.174	4.13	4.43
H	0.591	0.614	15.00	15.60
L	0.79	0.102	2.00	2.60
L1	0.39	0.055	1.00	1.40
L3	0.10 BSC		0.254 BSC	
(L4)	0.071	0.087	1.80	2.20