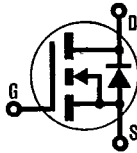


INTERNATIONAL RECTIFIER

INTERNATIONAL RECTIFIER 

HEXFET® TRANSISTORS * JANTXV2N6760

**JEDEC REGISTERED
N-CANNEL
POWER MOSFETs**



*** JANTX2N6760**

2N6760

2N6759

*QUALIFIED TO MIL-S-19500/542

400 Volt, 1.0 Ohm HEXFET

The HEXFET® technology is the key to International Rectifier's advanced line of power MOSFET transistors. The efficient geometry and unique processing of the HEXFET design achieve very low on-state resistance combined with high transconductance and great device ruggedness.

The HEXFET transistors also feature all of the well established advantages of MOSFETs such as voltage control, very fast switching, ease of paralleling, and temperature stability of the electrical parameters.

They are well suited for applications such as switching power supplies, motor controls, inverters, choppers, audio amplifiers, and high energy pulse circuits.

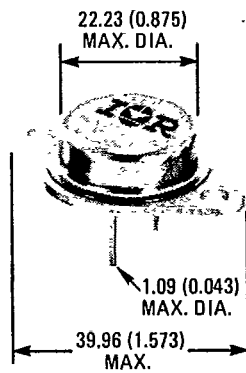
Features:

- Fast Switching
- Low Drive Current
- Ease of Paralleling
- Excellent Temperature Stability

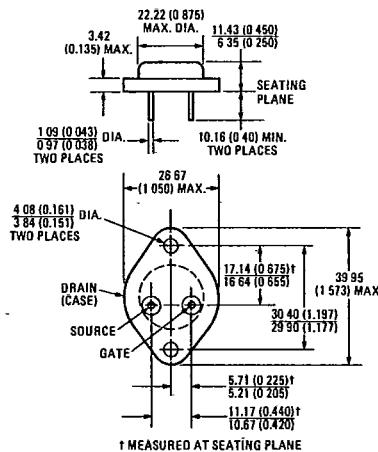
Product Summary

Part Number	V _{DS}	R _{DS(on)}	I _D
2N6759	350V	1.5Ω	4.5A
2N6760	400V	1.0Ω	5.5A

CASE STYLE AND DIMENSIONS



ACTUAL SIZE



Conforms to JEDEC Outline TO-204AA (TO-3)
Dimensions in Millimeters and (Inches)



Absolute Maximum Ratings

INTERNATIONAL RECTIFIER

Parameter	2N6759	2N6760	Units
V _{DS} Drain - Source Voltage	350*	400*	V
V _{DGR} Drain - Gate Voltage (R _{GS} = 1 MΩ)	350*	400*	V
I _D @ T _C = 25°C Continuous Drain Current	4.5*	5.5*	A
I _D @ T _C = 100°C Continuous Drain Current	3.0*	3.5*	A
I _{DM} Pulsed Drain Current	7.0	8.0	A
V _{GS} Gate - Source Voltage	±20*		V
P _D @ T _C = 25°C Max. Power Dissipation	75* (See Fig. 11)		W
P _D @ T _C = 100°C Max. Power Dissipation	30* (See Fig. 11)		W
Linear Derating Factor	0.6* (See Fig. 11)		W/K ②
I _{LM} Inductive Current, Clamped	(See Fig. 1 and 2) L = 100 μH 7.0 8.0		A
T _J Operating and Storage Temperature Range	-55* to 150*		°C
T _{stg} Lead Temperature	300* (0.063 in. (1.6mm) from case for 10s)		°C


Electrical Characteristics @ T_C = 25°C (Unless Otherwise Specified)

Parameter	Type	Min.	Typ.	Max.	Units	Test Conditions
BV _{DSS} Drain - Source Breakdown Voltage	2N6759 2N6760	350 400	-	-	V	V _{GS} = 0 I _D = 1.0 mA
V _{GS(th)} Gate Threshold Voltage	ALL	2.0*	-	4.0*	V	V _{DS} = V _{GS} , I _D = 1 mA
I _{GSSF} Gate - Body Leakage Forward	ALL	-	-	100*	nA	V _{GS} = 20V
I _{GSSR} Gate - Body Leakage Reverse	ALL	-	-	100*	nA	V _{GS} = -20V
I _{DSS} Zero Gate Voltage Drain Current	ALL	-	0.1	1.0*	mA	V _{DS} = Max. Rating, V _{GS} = 0
			0.2	4.0*	mA	V _{DS} = Max. Rating, V _{GS} = 0, T _C = 125°C
V _{DS(on)} Static Drain-Source On-State Voltage ①	2N6759 2N6760	-	-	7.0* 6.7*	V	V _{GS} = 10V, I _D = 4.5A V _{GS} = 10V, I _D = 5.5A
R _{DS(on)} Static Drain-Source On-State Resistance ①	2N6759 2N6760	-	1.0 0.8	1.5* 1.0*	Ω	V _{GS} = 10V, I _D = 3A V _{GS} = 10V, I _D = 3.5A
R _{DS(on)} Static Drain-Source On-State Resistance ①	2N6759 2N6760	-	-	3.3* 2.2*	Ω	V _{GS} = 10V, I _D = 3A, T _C = 125°C V _{GS} = 10V, I _D = 3.5A, T _C = 125°C
g _{fs} Forward Transconductance ①	ALL	3.0*	4.5	9.0*	S (Ω)	V _{DS} = 15V, I _D = 3.5A
C _{iss} Input Capacitance	ALL	350*	600	800*	pF	V _{GS} = 0, V _{DS} = 25V, f = 1.0 MHz
C _{oss} Output Capacitance	ALL	50*	150	300*	pF	See Fig. 10
C _{rss} Reverse Transfer Capacitance	ALL	20*	40	80*	pF	
t _{d(on)} Turn-On Delay Time	ALL	-	-	30*	ns	V _{DD} ≅ 175V, I _D = 3.5A, Z _o = 15Ω
t _r Rise Time	ALL	-	-	35*	ns	(See Figs. 13 and 14)
t _{d(off)} Turn-Off Delay Time	ALL	-	-	55*	ns	(MOSFET switching times are essentially independent of operating temperature.)
t _f Fall Time	ALL	-	-	35*	ns	

Thermal Resistance

Parameter	ALL	Min.	Typ.	Max.	Units	Notes
R _{thJC} Junction-to-Case	1.67*	-	-	-	K/W ②	
R _{thCS} Case-to-Sink	0.1	-	-	-	K/W ②	Mounting surface flat, smooth, and greased.
R _{thJA} Junction-to-Ambient	30	-	-	-	K/W ②	Typical socket mount

Body-Drain Diode Ratings and Characteristics

Parameter	2N6759 2N6760	Min.	Typ.	Max.	Units	Notes
I _S Continuous Source Current (Body Diode)	-	-	-	4.5* 5.5*	A	Modified MOSFET symbol showing the integral reverse P-N junction rectifier. 
I _{SM} Pulsed Source Current (Body Diode)	-	-	-	7.0 8.0	A	
V _{SD} Diode Forward Voltage ①	2N6759 2N6760	0.70* 0.75*	-	1.4* 1.5*	V	T _C = 25°C, I _S = 4.5A, V _{GS} = 0 T _C = 25°C, I _S = 5.5A, V _{GS} = 0
t _{rr} Reverse Recovery Time	ALL	-	550	-	ns	T _J = 150°C, I _F = I _{SM} , dI _F /dt = 100 A/μs
Q _{RR} Reverse Recovered Charge	ALL	-	8.0	-	μC	T _J = 150°C, I _F = I _{SM} , dI _F /dt = 100 A/μs

*JEDEC registered values. ① Pulse Test: Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%

② K/W = °C/W
W/K = W/°C

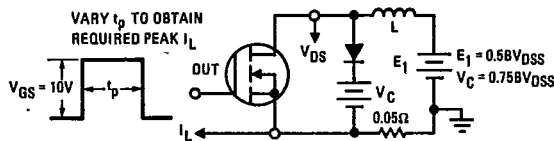


Fig. 1 - Clamped Inductive Test Circuit

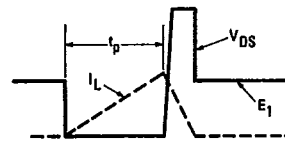


Fig. 2 - Clamped Inductive Waveforms

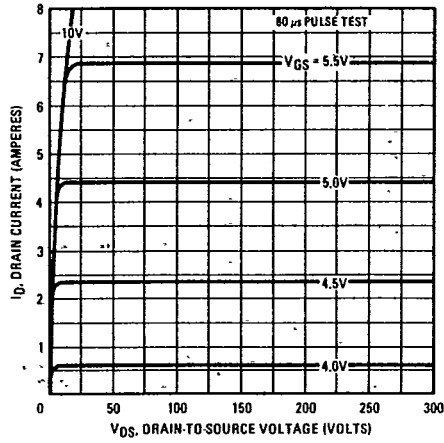


Fig. 3 - Typical Output Characteristics

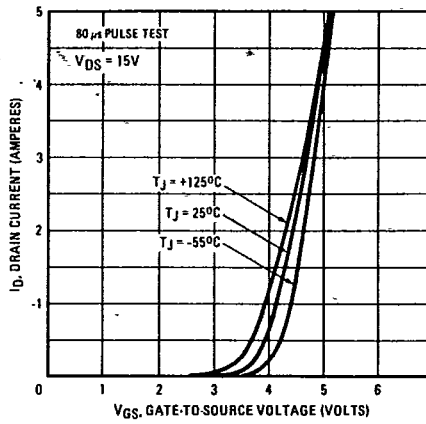


Fig. 4 - Typical Transfer Characteristics

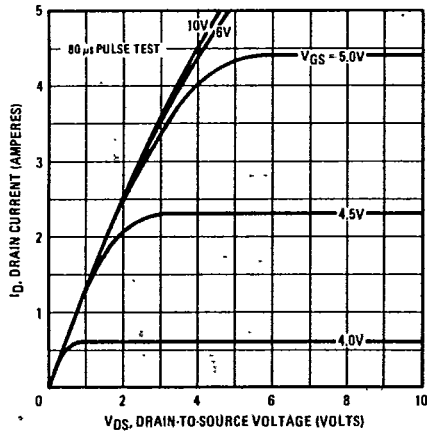


Fig. 5 - Typical Saturation Characteristics (2N6759)

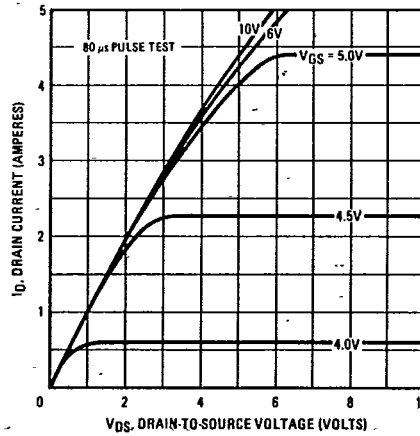


Fig. 6 - Typical Saturation Characteristics (2N6760)

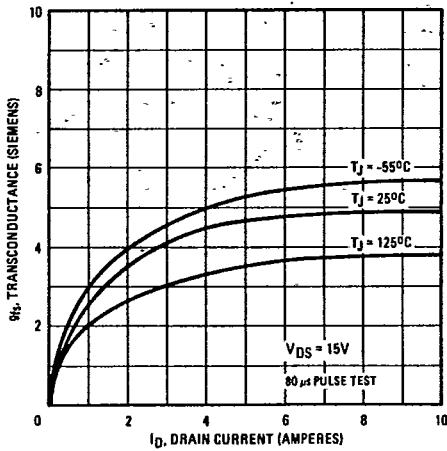


Fig. 7 - Typical Transconductance Vs. Drain Current

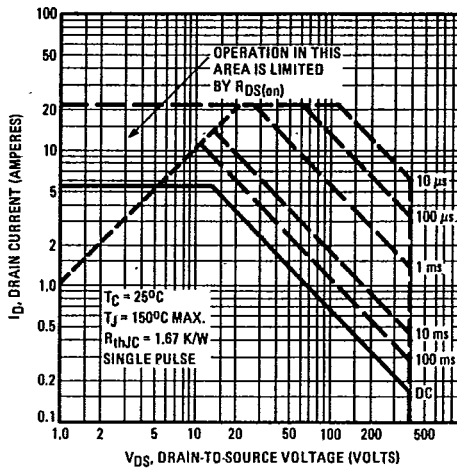


Fig. 8 - Maximum Safe Operating Area

10-3

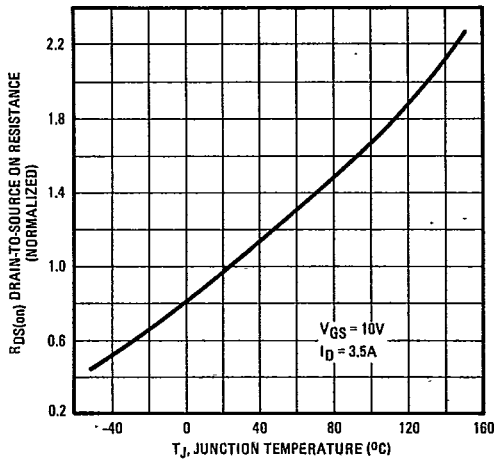


Fig. 9 - Normalized Typical On-Resistance Vs. Temperature

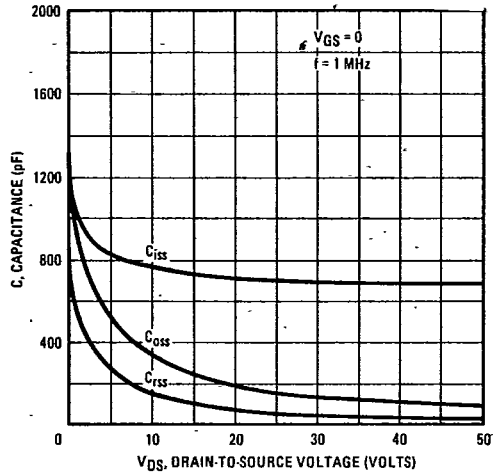


Fig. 10 - Typical Capacitance Vs. Drain-to-Source Voltage

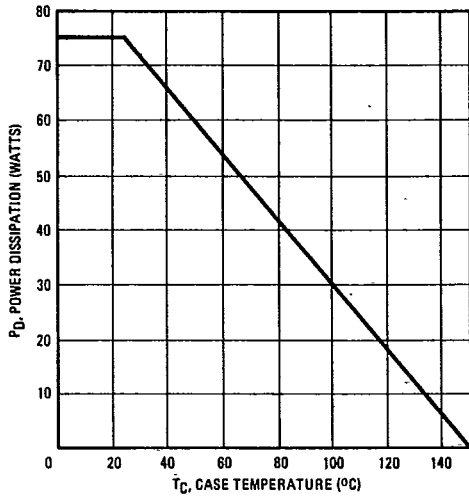


Fig. 11 - Power Vs. Temperature Derating Curve

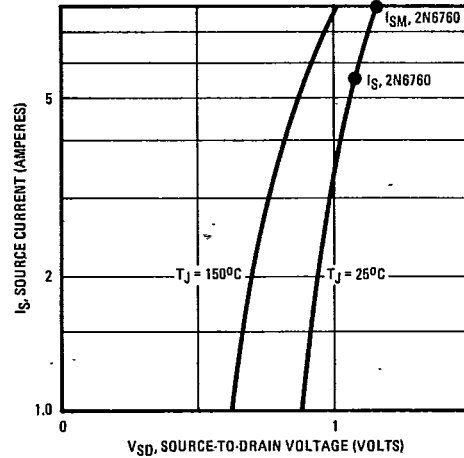


Fig. 12 - Typical Body-Drain Diode Forward Voltage

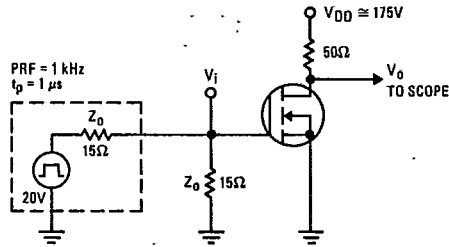


Fig. 13 - Switching Time Test Circuit

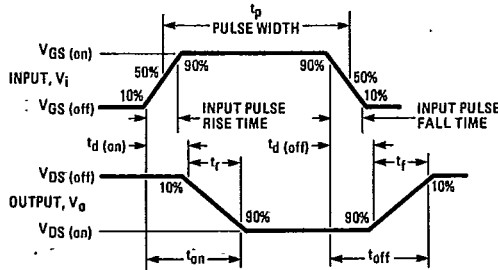


Fig. 14 - Switching Time Waveforms