

INTELLIGENT HIGH SIDE MOSFET POWER SWITCH

$V_{cc(op)}$	5v-50v
$R_{ds(on)}$	100m Ω
I_{lim}	20A
$T_{j(sd)}$	170°C
E_{av}	200mJ

Condition	In	Out	Dg
Normal	H	H	H
Normal	L	L	L
Output Open	H	H	H
Output Open	L	H	H
Shorted Output	H	Current-Limiting	L
Shorted Output	L	L	L
Over-Temperature	H	L	L
Over-Temperature	L	L	L

[illegible]

IR6226
TO-220
(5-lead)

Absolute Maximum Ratings

Absolute Maximum Ratings indicate sustained limits beyond which damage to the device may occur. ($T_c = 25^\circ\text{C}$ unless otherwise specified.)

		Minimum	Maximum	Units	Test Conditions
V_{cc}	Supply Voltage	-0.3	50	V	Pin 3 to Pin 1 (1), for 10 seconds
	Permanent Reverse	-16	—		
V_{offset}	Logic to Power Ground Offset	$V_{cc} - 50$	$V_{cc} + 0.3$		
V_{in}	Input Voltage	-0.3	30	mA	
I_{in}	Input Current	—	10		
V_{out}	Output Voltage	$V_{cc} - 50$	$V_{cc} + 0.3$	V	
I_{out}	Output Current	Self-limited			
V_{dg}	Diagnostic Output Voltage	-0.3	30	V	
I_{dg}	Diagnostic Output Current	—	10	mA	
E_{av}	Repetitive Avalanche Energy	—	200	mJ	$I = 2\text{A}$ (2)
ESD1	Electrostatic Discharge (Human Body Model)	—	4000	V	$C = 100\text{ pF}$, $R = 1500\Omega$
ESD2	Electrostatic Discharge (Machine Model)	—	1000	V	$C = 200\text{ pF}$, $R = 0\Omega$
PD	Power Dissipation	—	28	W	$T_{case} = 25^\circ\text{C}$
T_{Jop}	Operating Junction Temperature Range	-40	Self-limited	$^\circ\text{C}$	
T_{Stg}	Storage Temperature Range	-40	175		
T_L	Lead Temperature (Soldering, 10 seconds)	—	300		

NOTES: (1) with 15k Ω resistors in input and diagnostic

(2) maximum frequency depends on heatsink (rectangular waveform)

Static Electrical Characteristics

($T_c = 25^\circ\text{C}$ unless otherwise specified.)

		Minimum	Typical	Maximum	Units	Test Conditions
V_{ccop}	Operating Voltage Range	5	—	50	V	
I_{ccoff}	Sleep Mode Supply Current	—	40	—	μA	$V_{cc} = 24\text{V}$, $V_{in} = 0\text{V}$
I_{ccon}	Supply Current (Average)	—	3	—	mA	$V_{in} = 5\text{V}$
I_{ccac}	Supply Current (AC RMS)	—	20	—	μA	$V_{in} = 5\text{V}$
V_{ih}	High Level Input Threshold Voltage	—	2	2.5	V	
V_{il}	Low Level Input Threshold Voltage	1	1.8	—		
I_{ion}	On-State Input Current	10	—	70	μA	$V_{in} = 3.5\text{V}$
I_{loff}	Off-State Input Current	1	—	30		$V_{in} = 0.4\text{V}$
I_{oh}	Output Leakage Current	—	20	—		$V_{out} = 6\text{V}$
I_{ol}	Output Leakage Current	0	—	10		$V_{out} = 0\text{V}$
V_{dgl}	Low Level Diagnostic Output Voltage	—	0.3	—	V	$I_{dg} = 1.6\text{mA}$
I_{dgh}	Diagnostic Output Leakage Current	0	—	10	μA	$V_{dg} = 5\text{V}$
$R_{DS(on)}$	On-State Resistance	—	80	100	$\text{m}\Omega$	$I_{out} = 1\text{A}$
		—	120	—		$V_{cc} = 5\text{V}$, $I_{out} = 1\text{A}$

Switching Electrical Characteristics

($V_{CC} = 14\text{V}$, Resistive Load (R_L) = 12 Ω , $T_c = 25^\circ\text{C}$.)

		Minimum	Typical	Maximum	Units	Test Conditions
t_{on}	Turn-On Delay Time to 90%	—	50	—	μs	
t_{off}	Turn-Off Delay Time to 10%	—	60	—		
dv/dt_{on}	Slew Rate On	—	3	—	$\text{V}/\mu\text{s}$	
dv/dt_{off}	Slew Rate Off	—	5	—		

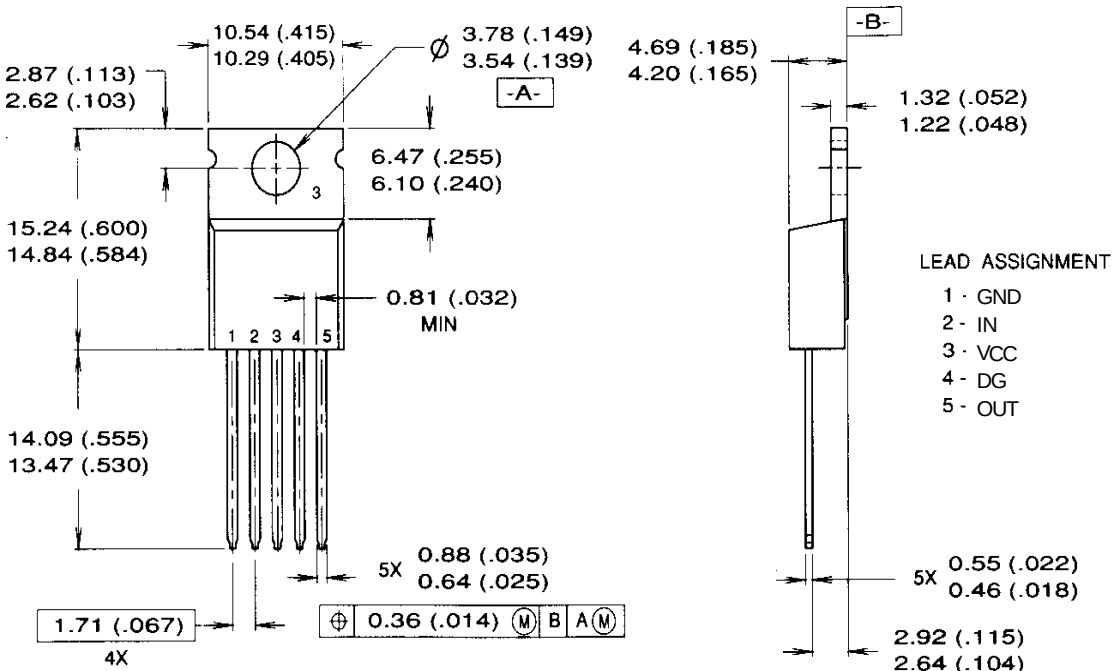
Protection Characteristics

		Minimum	Typical	Maximum	Units	Test Conditions
I_{ilm}	Internal Current Limit	—	20	—	A	
V_{sc}	Short Circuit Detection Voltage	—	3.5	—	V	
V_{slh}	Open Load Detection Voltage	—	3.5	—		
V_{cl1}	Output Negative Clamp	50	54	—		$I_{out} = 10mA$
V_{cl2}	Output Negative Clamp	—	56	62		$I_{out} = 2A$

Thermal Characteristics

		Minimum	Typical	Maximum	Units	Test Conditions
$T_{j\text{sd}}$	Thermal Shutdown Temperature	—	170	—	°C	
$T_{h\text{ys}}$	Thermal Hysteresis	—	5	—		
$R_{th\text{jc}}$	Thermal Resistance, Junction to Case	—	3.5	—	°C/W	
$R_{th\text{ja}}$	Thermal Resistance, Junction to Ambient	—	50	—		

Case Outline — TO-220 (IR6226)



NOTES:

1. Dimensioning and tolerancing per ANSI Y14.5M, 1982
2. Controlling dimension: INCH
3. Dimensions shown are in millimeters (inches)
4. Heatsink and lead measurements do not include burrs.