

JMH65R190PFFD

Product Summary

Parameters	Value	Unit
V_{DSS}	650	V
$V_{GS(th)}_{Typ}$	3.6	V
$I_D(@V_{GS}=10V)$	12	A
$R_{DS(ON)}_{Typ}(@V_{GS}=10V)$	148	m Ω

Ordering Information

Device	Marking	MSL	Form	Package	Tube(pcs)	Per Carton (pcs)
JMH65R190PFFD-U	H65R190PF	N/A	Tube	TO-220FP	50	5000

Absolute Maximum Ratings (@ $T_C = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Value	Unit	
V_{DS}	Drain-to-Source Voltage	650	V	
V_{GS}	Gate-to-Source Voltage	± 30	V	
I_D	Continuous Drain Current	$T_C = 25^\circ\text{C}$	12	A
		$T_C = 100^\circ\text{C}$	7.6	
I_{DM}	Pulsed Drain Current ⁽¹⁾	Refer to Fig.4	A	
E_{AS}	Single Pulsed Avalanche Energy ⁽²⁾	65	mJ	
P_D	Power Dissipation	$T_C = 25^\circ\text{C}$	71	W
		$T_C = 100^\circ\text{C}$	28	
T_J, T_{STG}	Junction & Storage Temperature Range	-55 to 150	$^\circ\text{C}$	

Thermal Characteristics

Symbol	Parameter	Max	Unit
R	Thermal Resistance, Junction to Ambient ⁽³⁾	58	$^\circ\text{C}/\text{W}$
R	Thermal Resistance, Junction to Case	1.8	

Electrical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$I_D = 250\mu\text{A}, V_{GS} = 0\text{V}$	650	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 650\text{V}, V_{GS} = 0\text{V}$	-	-	10.0	μA
I_{GSS}	Gate-Body Leakage Current	$V_{DS} = 0\text{V}, V_{GS} = \pm 30\text{V}$	-	-	± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D$	2.5	3.6	4.6	V
$R_{DS(ON)}$			-	148	190	m Ω
R_g			-	4.9	-	Ω
C_{iss}	Input Capacitance	$V_{GS} = 0\text{V}, V_{DS} = 325\text{V},$ $f = 1\text{MHz}$	1084	1517	2049	pF
C_{oss}	Output Capacitance		28	39	52	pF
C_{riss}	Reverse Transfer Capacitance		-	5.9	-	pF
Q_g			23	32	43	nC
Q_{gs}			-	10	-	nC
Q_{gd}			-	11	-	nC
$t_{d(on)}$			-	36	-	ns
t_r			-	38	-	ns
$t_{d(off)}$			-	100	-	ns
t_f			-	30	-	ns
I_S			-	-	12	A
I_{SM}			-	-	48	A
V_{SD}			-	-	1.2	V
t_{rr}			94	131	177	ns
Q_{rr}			-	851	-	nC

- Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
 2. E_{AS} condition: Starting $T_J=25^\circ\text{C}$, $V_{DD}=50\text{V}$, $V_{GS}=10\text{V}$, $R_G=25\text{ohm}$, $L=10\text{mH}$, $I_{AS}=3.6\text{A}$, $V_{DD}=0\text{V}$ during time in avalanche.
 3. R is measured with the device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.
 4. Pulse Test: Pulse Width 0.5%.



Typical Performance Characteristics

Figure 1: Power De-rating

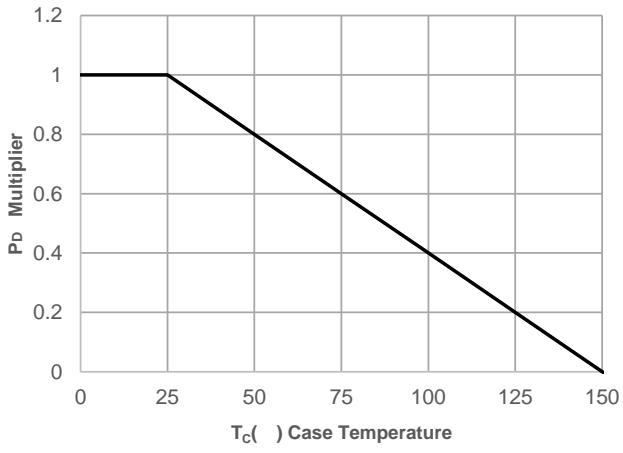
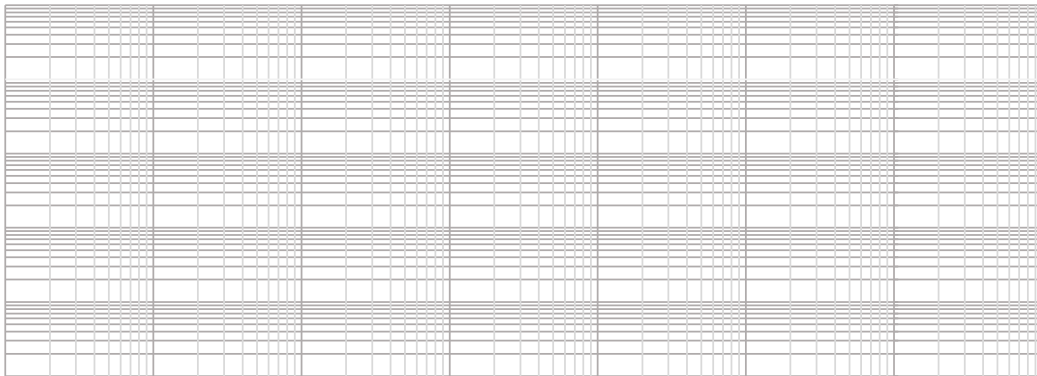
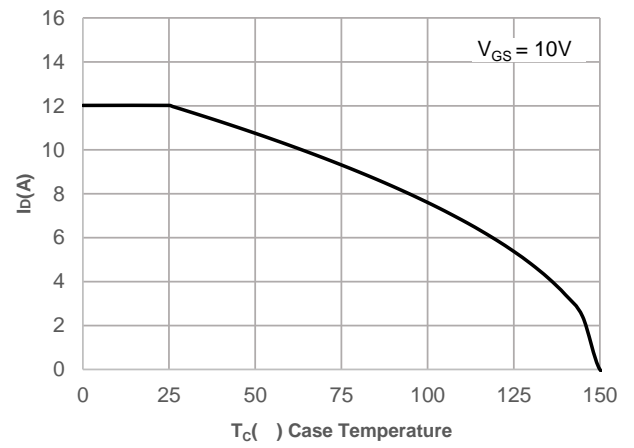
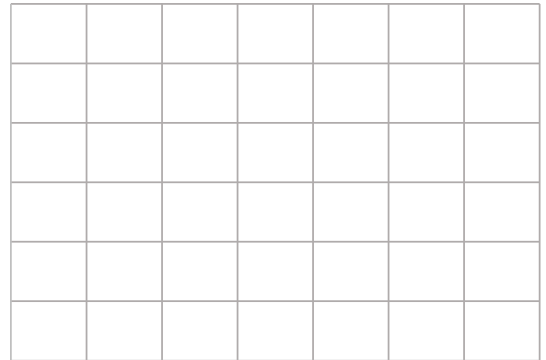
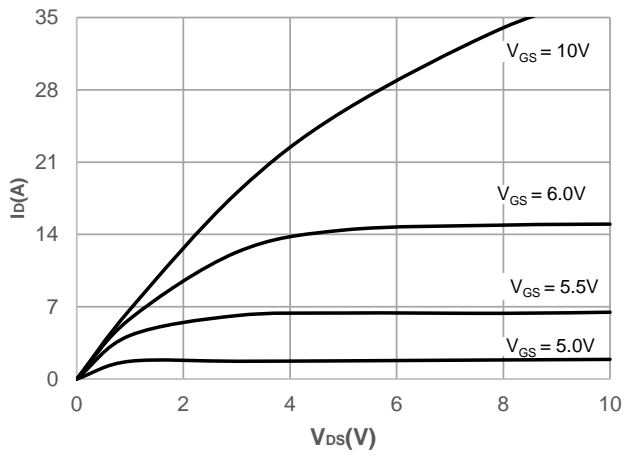


Figure 2: Current De-rating



Typical Performance Characteristics

Figure 5: Output Characteristics



Typical Performance Characteristics

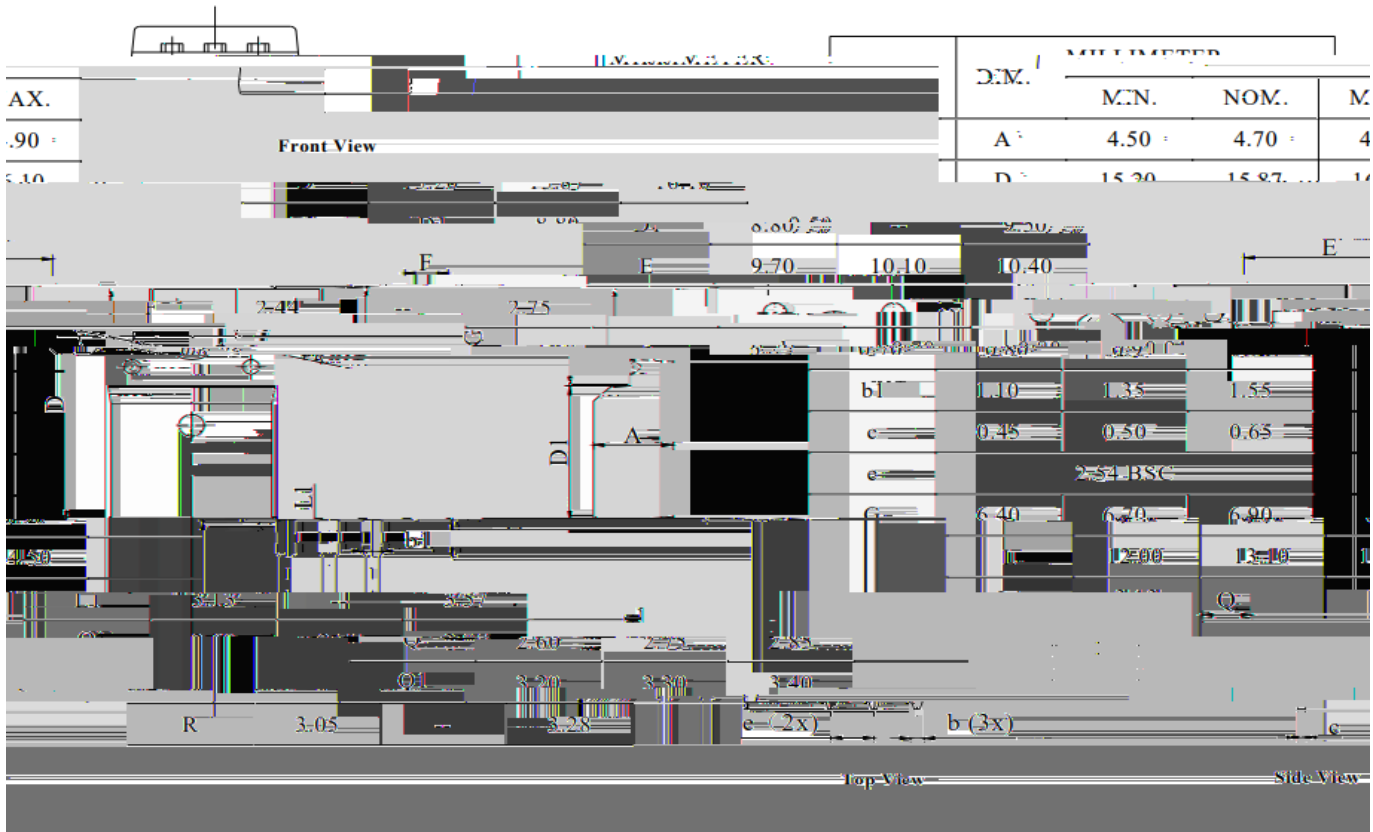
Test Circuit

Figure 1: Gate Charge Test Circuit & Waveform



Package Mechanical Data(TO-220F-3L)

Package Outline



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