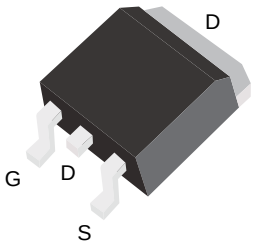
120A, 80V（锂电保护）
N-CHANNEL POWER MOSFET

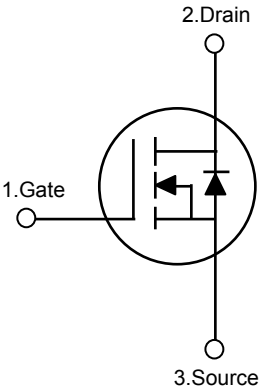
Features
Advanced process technology
Ultra low On-Resistance
175 ℃ OperatingTemperature
Fast Switching
RepetitiveAvalancheAllowed up toTjmax
Lead-Free

Product Summary

V_{DS}	80	V
$R_{DS(ON)}$ Max.	6.8	mΩ
I_D	120	A



TO-263
D^2PAK



ORDERING INFORMATION

Order Number	Package	Pin Assignment			Packing
		1	2	3	
HPB068NE7STA	TO-263（D^2PAK）	G	D	S	Tube Reel

ABSOLUTE MAX IMUM RATINGS（T_C=25℃, unless otherwise specified）

Parameter	Symbol	Conditions	Value	Unit
Drain source voltage	V_{DS}		80	V
Gate source voltage	V_{GS}		±20	
Continuous Drain Current	I_D	T_C=25℃	120	A
		T_C=100℃	84	
Pulsed Drain Current	I_D.pulse	T_C=25℃	480	
Avalanche Current	I_{AS}		120	
Avalanche energy, single pulse	E_{AS}	I_D=1A, V_{DD}=50V	700	mJ
Peak Diode Recovery de/dt	dv/dt		5	V/μS
Power dissipation	P_D	T_C=25℃	214	W
Linear Derating Factor			1.4	W/℃
Operating and storage temperature	T_J, T_{stg}		-55 to 150	℃
Soldering Temperature, for 10 seconds		300 (1.6 mm from case)		

Thermal characteristics

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Thermal resistance, junction-case	R_{thJC}		--	--	0.70	℃/W
Case-to-Sink, Flat, Greased Surface	R_{thcs}		0.24	--	--	
Junction-to-Ambient	R_{thJA}		--	--	50	
Maximum Lead Temperature ForSoldering Purpose	T_l		--	--	300	℃

Electrical characteristics, at=25 ℃, unless otherwise specified

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	80	--	--	V
Gate source voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2.0	--	4.0	
Zero gate voltage drian current	I_{DSS}	V_{DS}=80V, V_{GS}=0V,T_J=25℃	--	0.1	1	μA
		V_{DS}=80V, V_{GS}=0V,T_J=125℃	--	1	100	
Gate-source leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V	--	±10	±100	nA
Drain-source on-state resistance	$R_{DS(on)}$	V_{GS}=10A, I_D=40A	--	5.5	6.8	mΩ
Transconductance	g_{fs}	V_{DS}=10V, I_D=15A	25	--	--	S

Dynamic Characteristics

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Iutput capacitance	C_{iss}	V_{GS}=0V V_{DS}=25V f=1MHz	--	7190	--	pF
Output capacitance	C_{oss}		--	460	--	
Reverse transfer capacitance	C_{rss}		--	280	--	
Turn-on delay time	$t_{d(on)}$	V_{DS}=30V V_{GS}=10V I_D=40A R_G=3Ω	--	30	--	nS
Risse time	t_r		--	50	--	
Turn-off delay time	$t_{d(off)}$		--	79	--	
Fall time	t_f		--	24	--	

Gate Charge Characteristics

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Gate to source charge	Q_{gs}	V_{DS}=50V I_D=40A V_{GS}=0V	--	26	--	nC
Gate to drain charge	Q_{gd}		--	51	--	
Gate charge total	Q_g		--	139	--	

Reverse Diode

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Diode continous forward current	I_S	T_C=25℃	--	--	120	A
Diode pulse current	$I_{S,pulse}$	T_C=25℃	--	--	480	
Diode forard voltage	V_{SD}	V_{GS}=0V, I_F=120A, T_C=25℃	--	--	1.0	V
Reverse recovery time	t_{rr}	V_{GS}=0V, I_S=40A di_F/dt=100A/μs	--	36	--	μS
Reverse recovery charge	Q_{rr}		--	63	--	nC

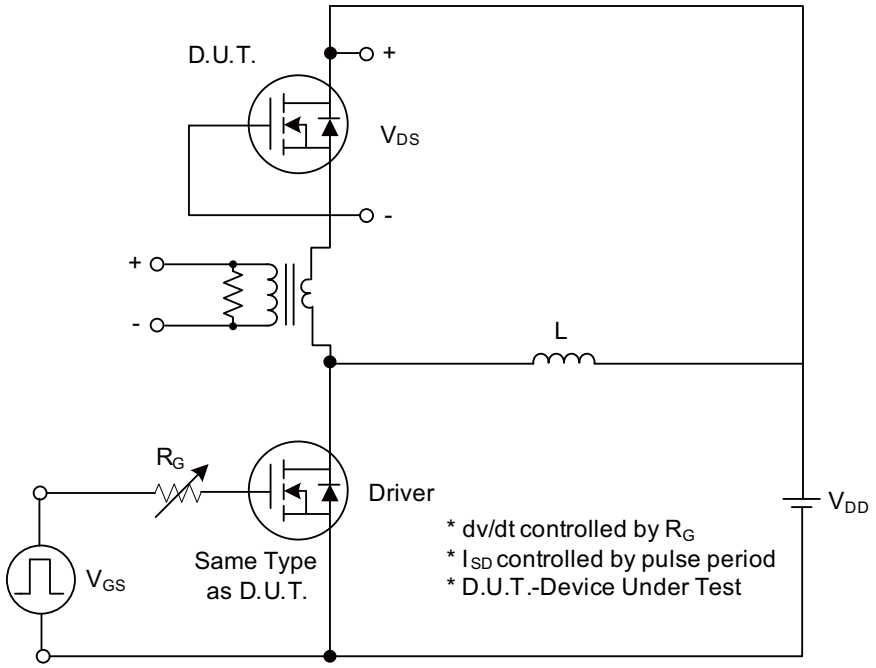


Fig. 1A Peak Diode Recovery dv/dt Test Circuit

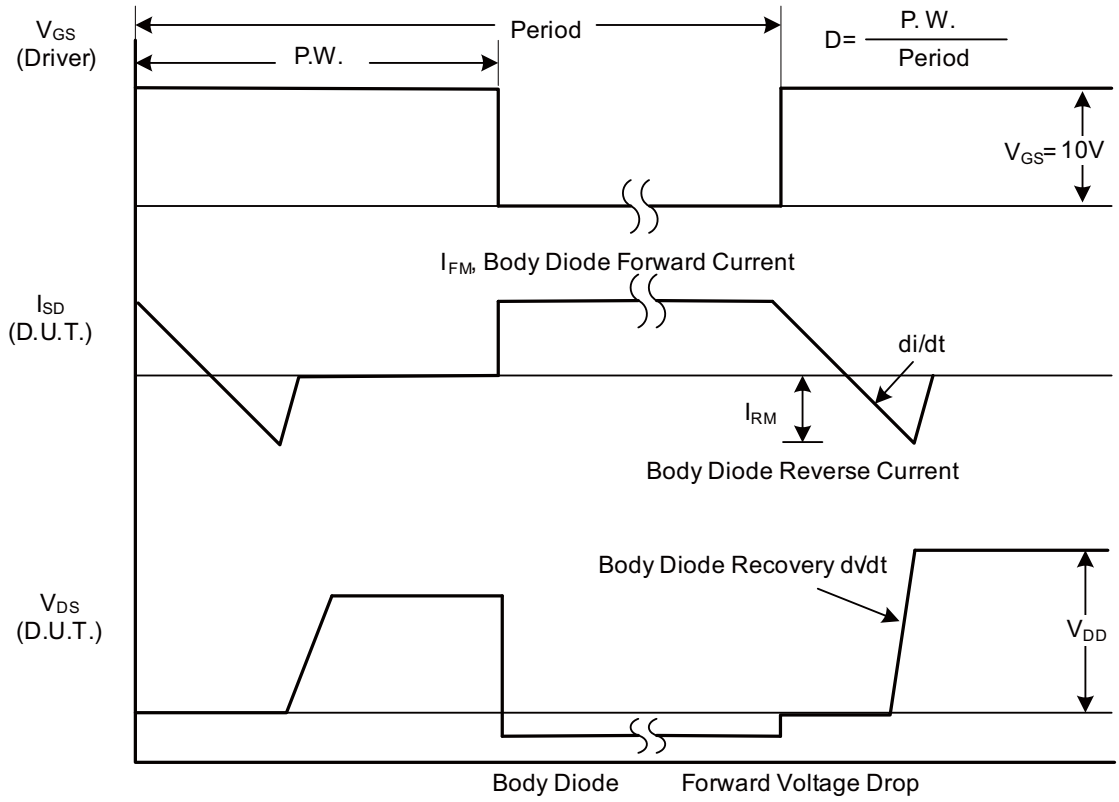


Fig. 1B Peak Diode Recovery dv/dt Waveforms

Test Circuits and Waveforms

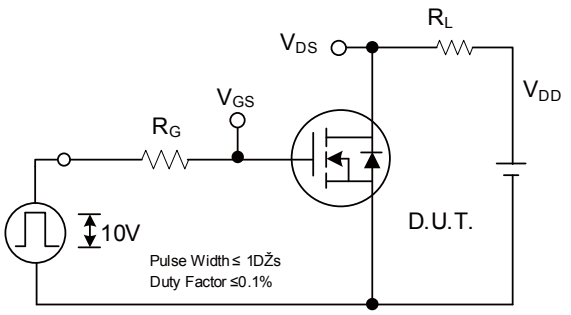


Fig. 2A Switching Test Circuit

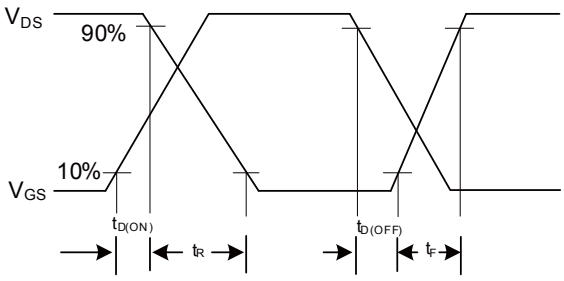


Fig. 2B Switching Waveforms

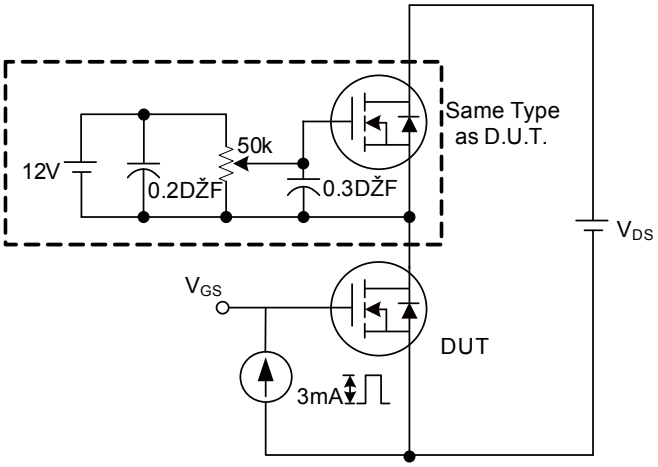


Fig. 3 AGate Charge Test Circuit

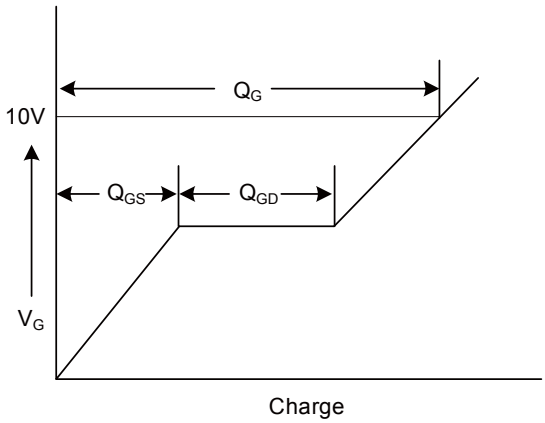


Fig. 3B Gate Charge Waveform

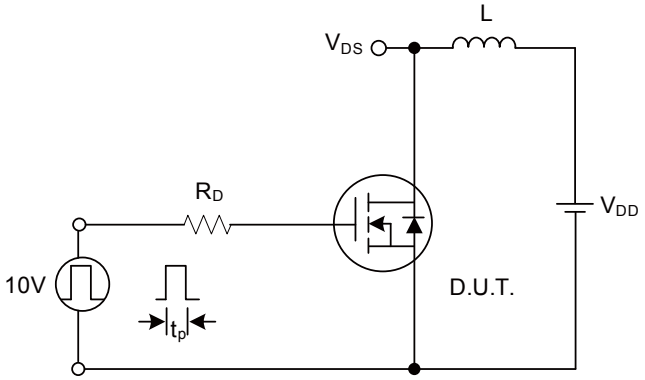


Fig.4A Unclamped In ductive Switching Test Circuit

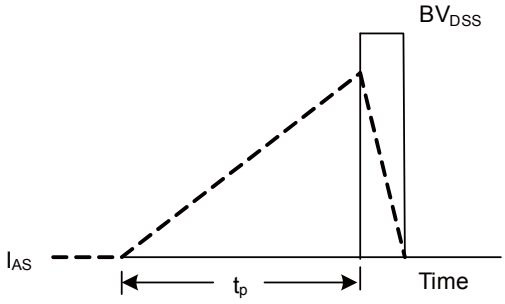


Fig.4B Unclamped In ductive Switching Waveforms

Fig 1. Typical Output Characteristics

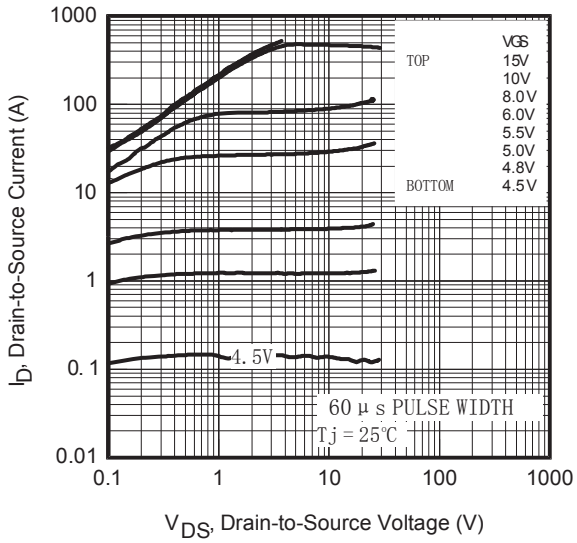


Fig 2. Drain-to-Source Breakdown Voltage

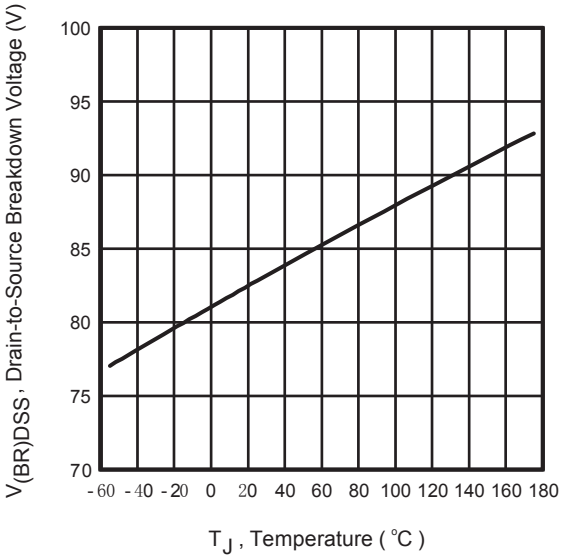


Fig 3. Typical Transfer Characteristics

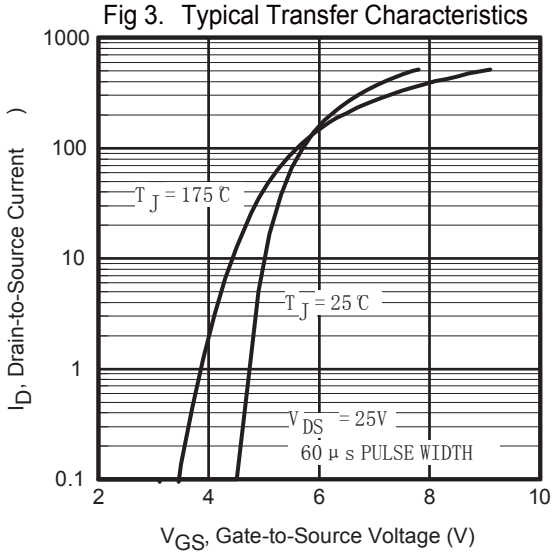


Fig 4. Normalized On-Resistance vs. Temperature

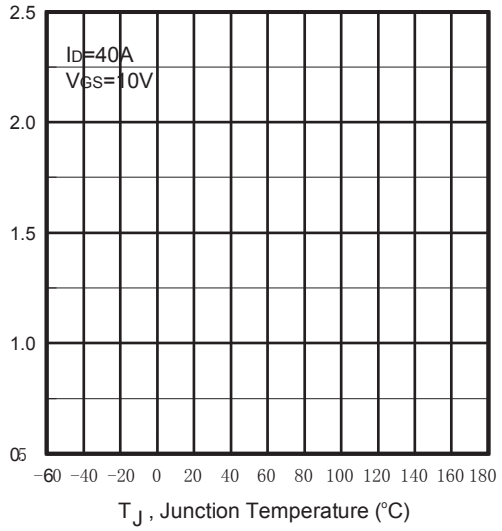


Fig 5. Typical Capacitance vs. Drain-to-Source Voltage

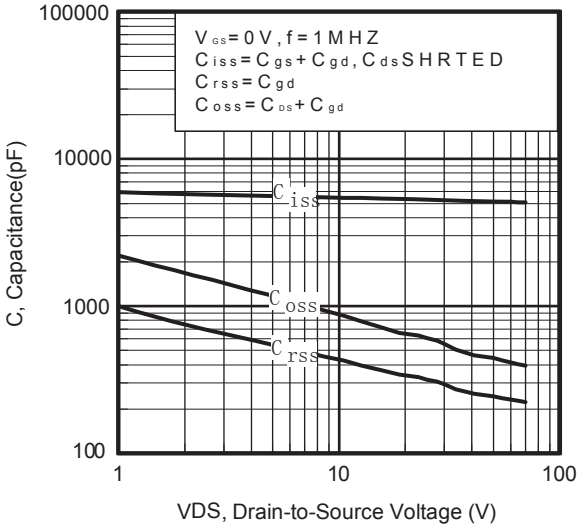


Fig 6. Typical Gate Charge vs. Gate-to-Source Voltage

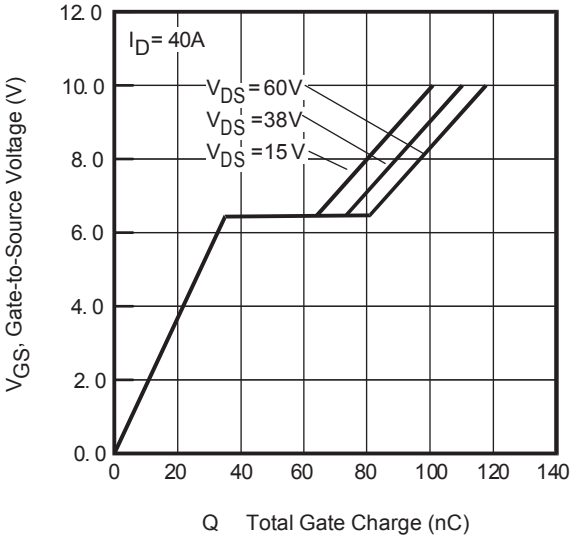


Fig 7. Maximum Drain Current vs. Case Temperature

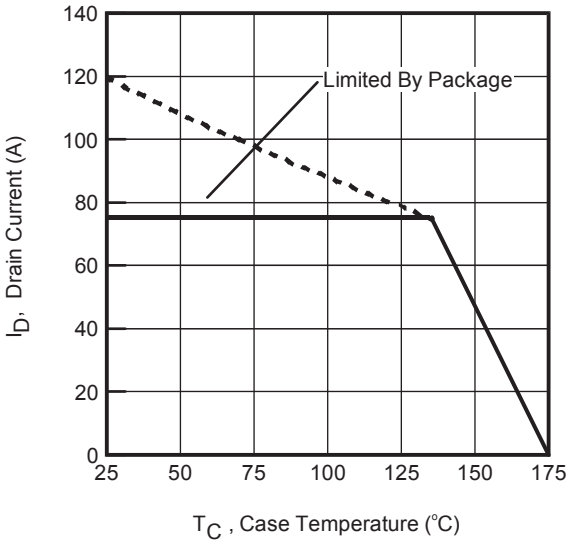


Fig 8. Maximum Safe Operating Area

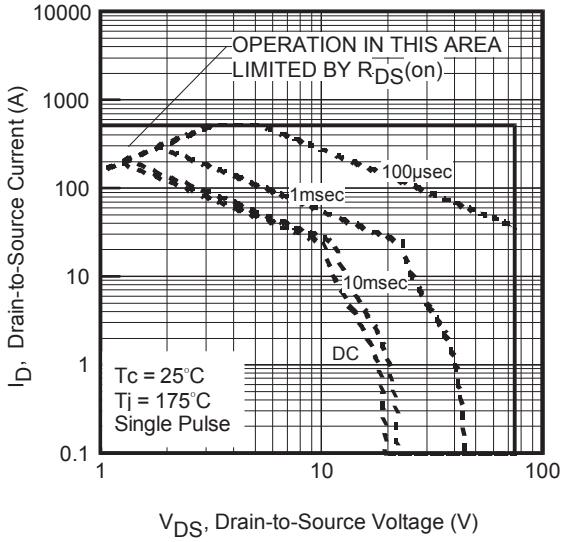
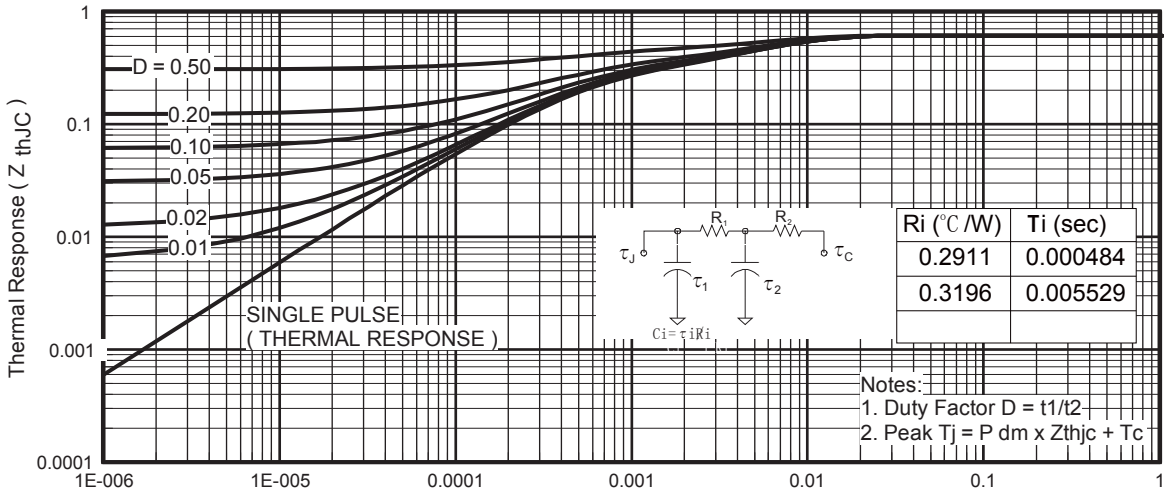
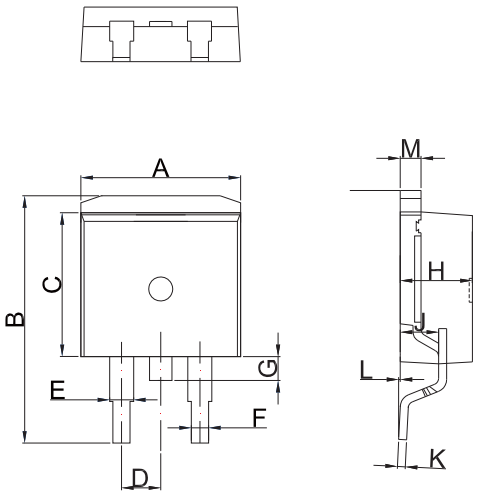


Fig 9. Maximum Effective Transient Thermal Impedance, Junction-to-Case



Ri (°C /W)	Ti (sec)
0.2911	0.000484
0.3196	0.005529

TO-263



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90		10.20	0.390		0.402
B	14.70		15.80	0.579		0.622
C	9.4		9.6	0.37		0.378
D		2.54			0.100	
E	1.20		1.40	0.047		0.055
F	0.75		0.85	0.029		0.033
G			1.75			0.069
H	4.40		4.70	0.173		0.185
J	2.30		2.70	0.091		0.106
K	0.38		0.55	0.015		0.022
L	0	0.10	0.25	0	0.004	0.010
M	1.25		1.35	0.049		0.053

深圳市浩海電子有限公司
SHENZHEN HAOHAI ELECTRONICS CO., LTD.

2 floor(whole floor), BAOXIN Building. 0 Lane on the 8th. Yufeng Garden.
82 District. BAOAN District, Shenzhen City, Guangdong Province, China.

公司电话 TEL: +86-755-29955080、29955081、29955082、29955083

FAX: +86-755-27801767 E-mail: kkg@kkg.com.cn
http://www.szhhe.com http://www.kkg.com.cn