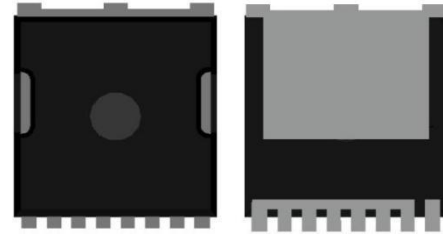


N-Channel Enhancement Mode MOSFET

Symbol	Value	Unit
V_{DS}	100	V
I_D	302	A
$R_{DS(ON)}$	1.9	m Ω



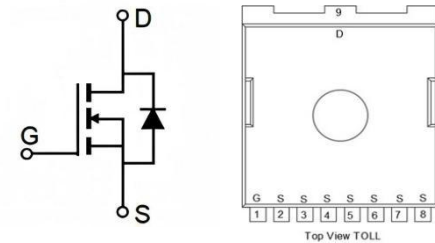
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Features

- Used advance shielded gate technology
- Extremely low on-resistance
- Excellent dynamic performance

Applications

- Motor control and drive
- Battery management system
- Uninterruptible Power Supplies



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

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C=25^{\circ}\text{C}$	I_D	302	A
	$T_C=100^{\circ}\text{C}$		191	
Peak Drain Current, Pulsed ¹⁾		I_{DM}	817	A
Avalanche Current		I_{AS}	76	A
Single Pulse Avalanche Energy ²⁾		E_{AS}	1224	mJ
Power Dissipation	$T_C=25^{\circ}\text{C}$	P_{tot}	312	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55~ 150	$^{\circ}\text{C}$

Thermal Characteristics

Parameter	Symbol	Values	Unit
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.4	$^{\circ}\text{C/W}$
Thermal Resistance from Junction to Ambient ³⁾	$R_{\theta JA}$	55	$^{\circ}\text{C/W}$

Note:

1) Pulse Test: Pulse Width $\leq 100\mu\text{s}$, Duty Cycle $\leq 2\%$, Repetitive rating, pulse width limited by $T_J(\text{MAX}) = 150^{\circ}\text{C}$.

2) Limited by $T_J(\text{MAX})$, starting $T_J=25^{\circ}\text{C}$, $L=0.5\text{mH}$, $R_g=25\Omega$, $I_D=76\text{A}$.

3) Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate in still air.

Electrical Characteristics (at Ta=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Static characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V; I _D =250uA	100	-	-	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =100V; V _{GS} =0V	-	-	1	μA
Gate Leakage Current	I _{GSS}	V _{GS} =±20V; V _{DS} =0V	-	-	±200	nA
Gate-Source Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} ; I _D =250uA	2.0	-	4.0	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V; I _D =50A	-	1.9	2.5	mΩ
Dynamic characteristics						
Input Capacitance	R _g	f=1MHz	-	1.8	-	Ω
Forward Transconductance	g _{fs}	V _{DS} =5V, I _D = 50A	-	120	-	S
Reverse Transfer Capacitance	C _{iss}	V _{GS} =0V; V _{DS} =50V; f=1MHz	-	11475	-	pF
Transconductance	C _{oss}		-	1496	-	pF
C _{oss} Stored Energy	C _{rss}		-	49	-	pF
Turn-on Energy	Q _g	V _{DS} =50V; V _{GS} =10V; I _D =50A	-	177	-	nC
Turn-off Energy	Q _{gs}		-	65	-	nC
Total Gate Charge	Q _{gd}		-	32	-	nC
Gate-Source Charge	t _{d(on)}	V _{DS} =50V; V _{GS} =10V; R _{g(ext)} =3Ω	-	35	-	ns
Gate-Drain Charge	t _r		-	111	-	ns
Internal Gate Resistor	t _{d(off)}		-	84	-	ns
Turn-on Delay Time	t _f		-	112	-	ns
Body-Diode Parameters						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V	-	-	1.3	V
Body Diode Reverse Recovery Time	t _{rr}	I _F =24A, di/dt=100A/μs	-	106	-	ns
Body Diode Reverse Recovery Charge	Q _{rr}		-	346	-	nC

Typical Characteristics

Fig 1: Output Characteristics

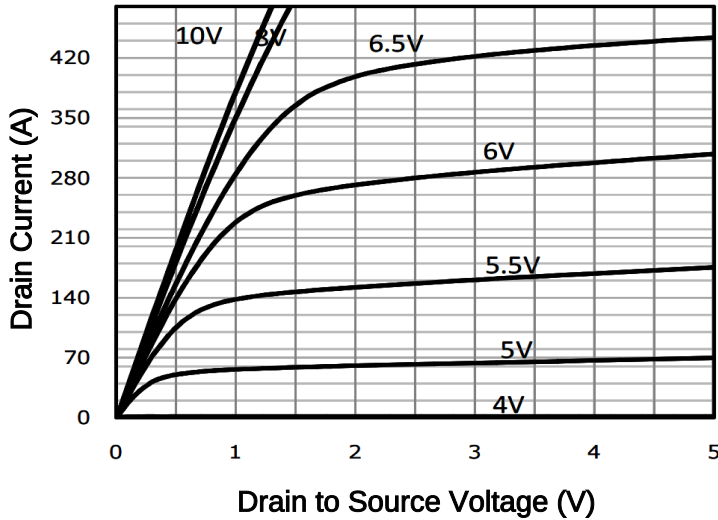


Fig 2: Transfer Characteristics

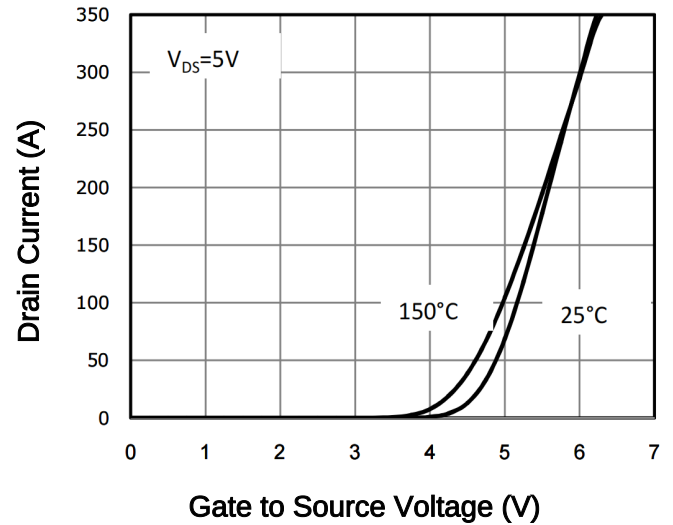


Fig 3: $R_{ds(on)}$ vs Drain Current

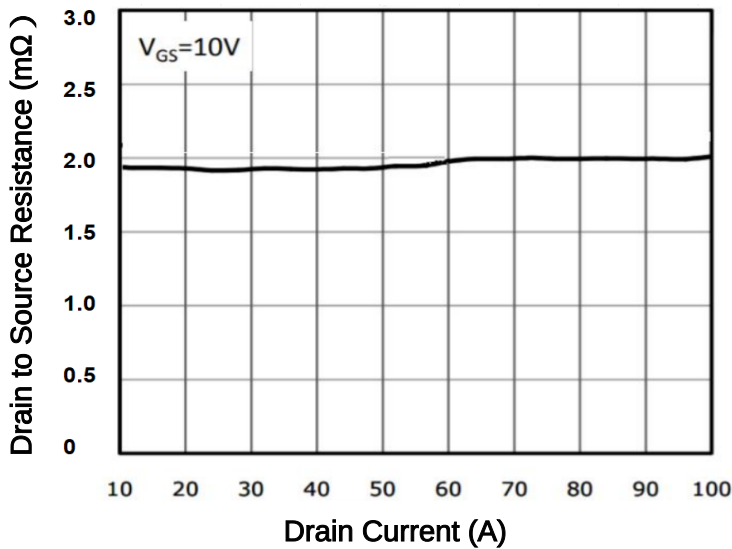


Fig 4: $R_{ds(on)}$ vs Gate Voltage

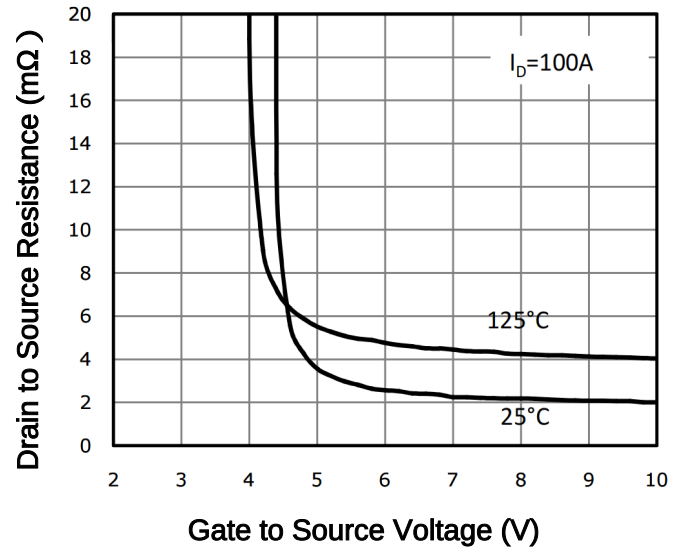


Fig 5: $R_{ds(on)}$ vs. Temperature (T_j)

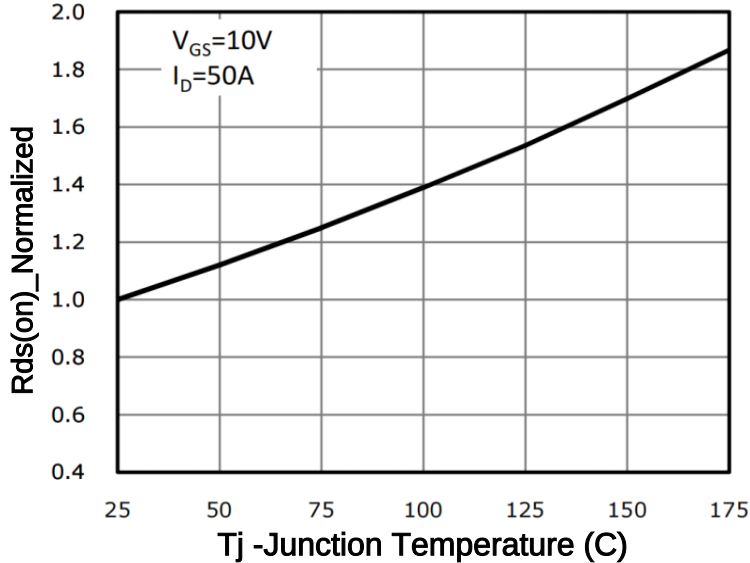


Fig 6: Capacitance Characteristics

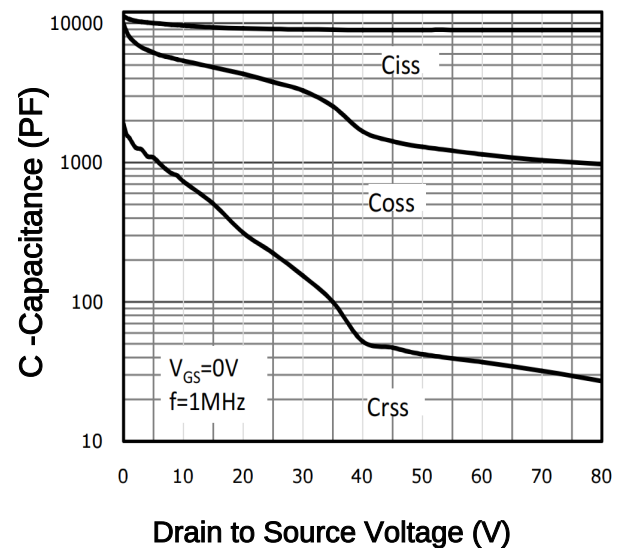


Fig 7: Gate Charge Characteristics

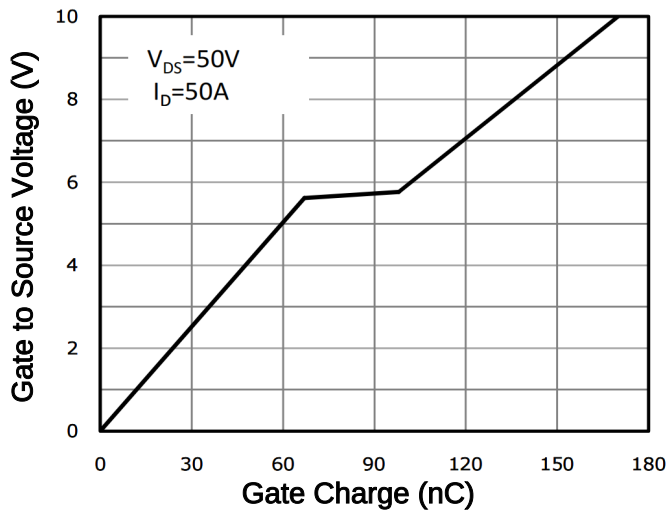


Fig 8: Body-diode Forward Characteristics

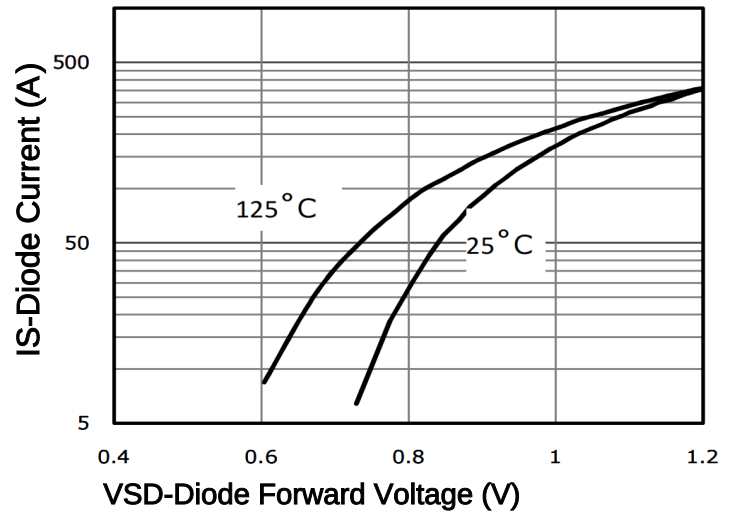


Fig 9: Power Dissipation

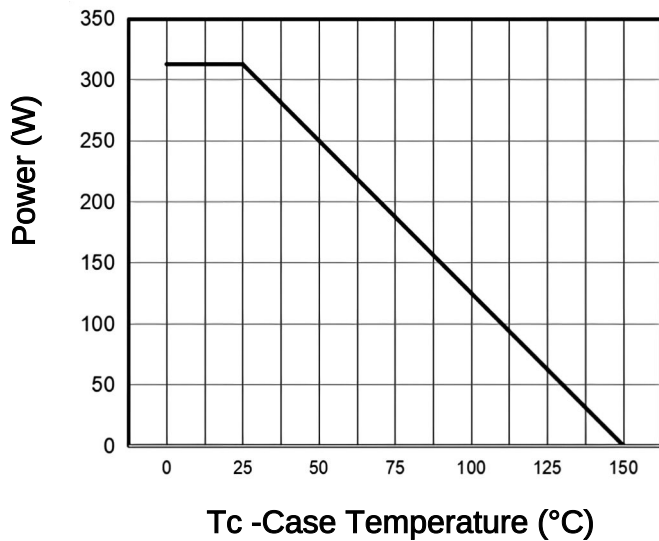


Fig 10: Drain Current Derating

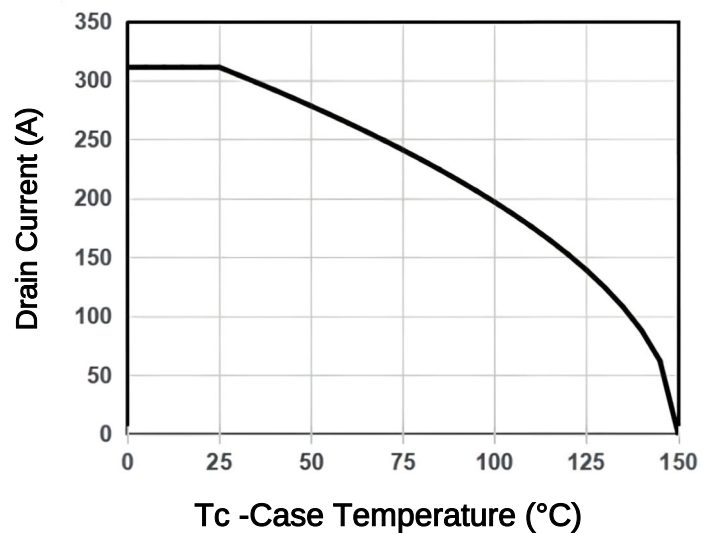


Fig 11: Safe Operating Area

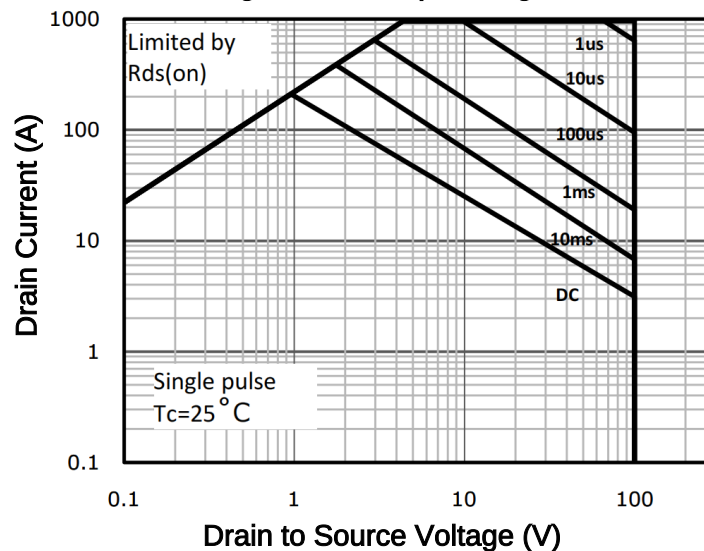
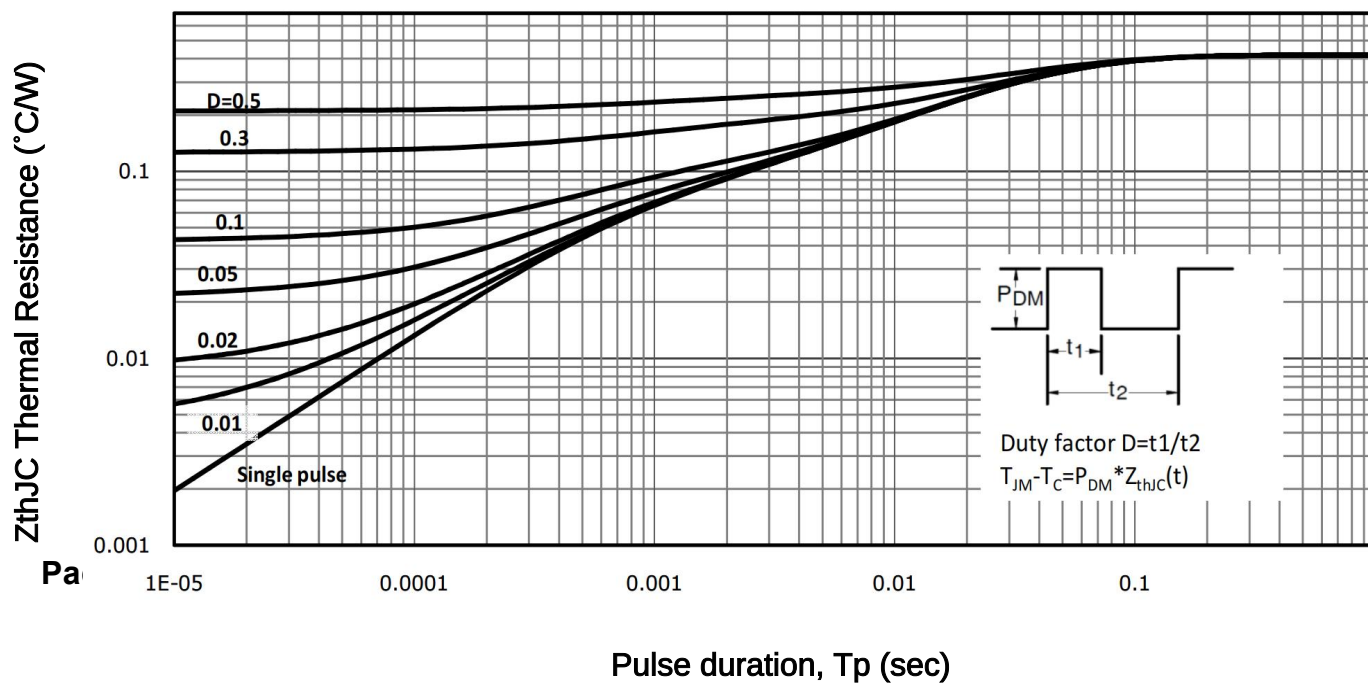
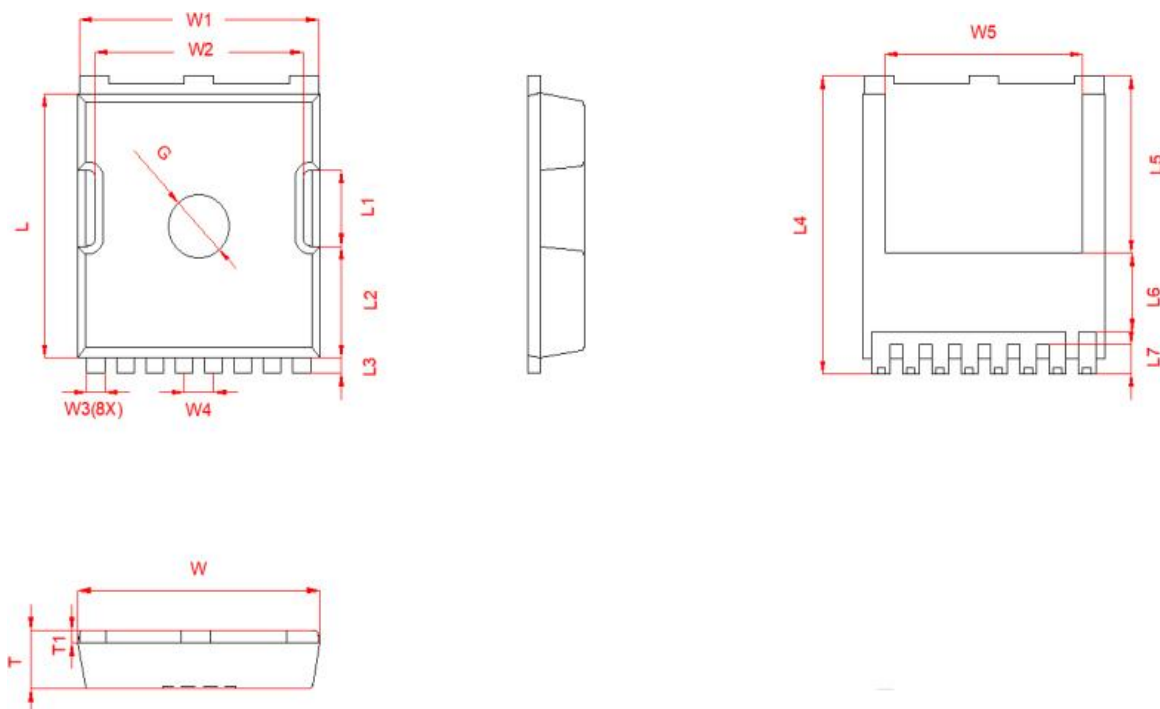


Fig 12: Transient Thermal Impedance



Package Outline Dimensions (Units: mm)

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符号	尺寸		符号	尺寸		符号	尺寸	
	Min	Max		Min	Max		Min	Max
W	9.7	10.1	L	10.28	10.58	L6	(3.1)	
W1	9.7	9.9	L1	(3.0)		L7	1.1	1.3
W2	(8.5)		L2	4.2	4.6	T	2.2	2.4
W3	0.6	0.85	L3	0.5	0.7	T1	0.4	0.6
W4	1.1	1.3	L4	11.48	11.88	G(Φ)	(2.5)	
W5	(8.1)		L5	(6.9)				

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