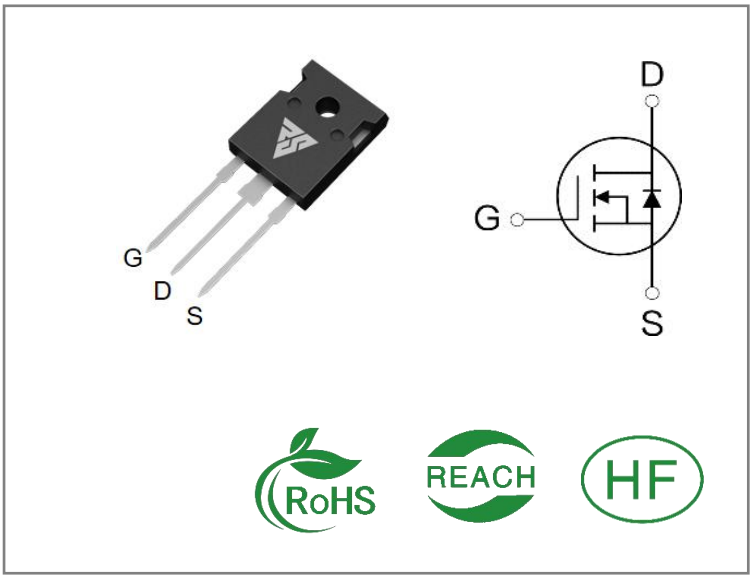
ID	R_{DS}(ON)(Typ)	VDSS
25A	0.18Ω	500V



Applications:
- Switch Mode Power Supply(SMPS)
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)

Features:
- Fast switching speed
- 100% avalanche tested
- Improved dv/dt capability

Ordering Information

Part Number	Package	Marking	Packing	Qty.
RS25N50W	T0-247-3	RS25N50W	Tube	30 PCS

Absolute Maximun Ratings Tc= 2 5℃ unless otherwise specified

Symbol	Parameter	RS25N50W	Units
VDSS	Drain-to-Source Voltage	500	V
ID	Continuous Drain Current TC=25℃	25	A
IDM	Pulsed Drain Current (Note*1)	100	
PD	Power Dissipation	190	W
VGS	Gate- to- Source Voltage	±30	V
EAS	Single Pulse Avalanche Engergy L = 10mH,,VDD = 50V, RG = 25Ω	671	mJ
TL TPKG	Maximum Temperature for Soldering	300 260	℃
	Leads at 0.063in(1.6mm)from Case for 10 seconds Package Body for 10 seconds		
TJ and TSTG	Operating Junction and Storage Temperature Range	-55 to 150	

* Drain Current Limited by Maximum Junction Temperature

Caution: Stresses greater than those listed in the“ Absolute Maximum Ratings” Table may cause permanent damage to the device.

Thermal Resistance

Symbol	Parameter	RS25N50W	Units	Test Conditions
RθJC	Junction-to-Case	0.65	℃/ W	Drain lead soldered to water cooled heatsink, PD adjusted for a peak junction temperature of + 1 5 0 ℃
RθJA	Junction-to-Ambient	62.5		1 cubic foot chamber,free air.

OFF Characteristics TJ= 25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
BVDSS	Drain- to- source Breakdown Voltage	500	--	--	V	VGS=0V,ID=250μA
IDSS	Drain- to- Source Leakage Current	--	--	1	μA	VDS=500V,VGS=0V
IGSS	Gate- to- Source Forward Leakage	--	--	100	nA	VGS=30V ,VDS=0V
	Gate- to- Source Reverse Leakage	--	--	-100		VGS=-30V ,VDS=0V

ON Characteristics TJ=25℃ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
RDS(on)	Static Drain- to- Source On-Resistance(Note*2)	--	0.18	0.24	Ω	VGS=10V,ID=12.5A
VGS(TH)	Gate Threshold Voltage	3	--	4	V	VGS=VDS,ID=250μA

Resistive Switching Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
td(ON)	Turn- on Delay Time	--	53	--	nS	VDS=250V ID=25A RG=25Ω
trise	Rise Time	--	37	--		
td(OFF)	Turn- OFF Delay Time	--	221	--		
tfall	Fall Time	--	70	--		

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	3134	--	pF	VGS=0V VDS=25V f=1.0MHz
Coss	Output Capacitance	--	340	--		
Crss	Reverse Transfer Capacitance	--	13	--		
Qg	Total Gate Charge	--	60.5	--	nC	VDS=400V ID=25A VGS=10V
Qgs	Gate- to- Source Charge	--	15.5	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	22	--		

Source- Drain Diode Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
IS	Continuous Source Current	--	--	25	A	Integral pn- diode in MOSFET
ISM	Maximum Pulsed Current	--	--	100	A	
VSD	Diode Forward Voltage	--	--	1.4	V	IS=12.5A,VGS=0V
trr	Reverse Recovery Time	--	375	--	nS	VGS=0V IS=25A,di/dt=100 A/μs
Qrr	Reverse Recovery Charge	--	5.7	--	μC	

Notes:

* 1. Repetitive rating, pulse width limited by maximum junction temperature.
* 2. Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 1%

Typical Feature Curve

Figure 1. Output Characteristics (T_J = 25ºC)

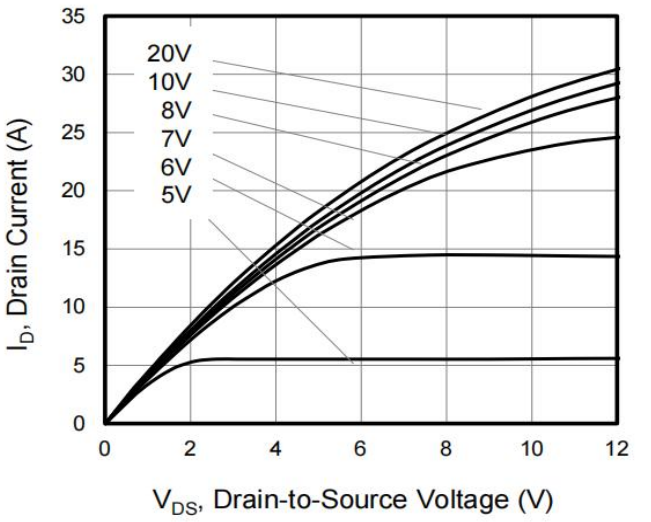


Figure 2. Body Diode Forward Voltage

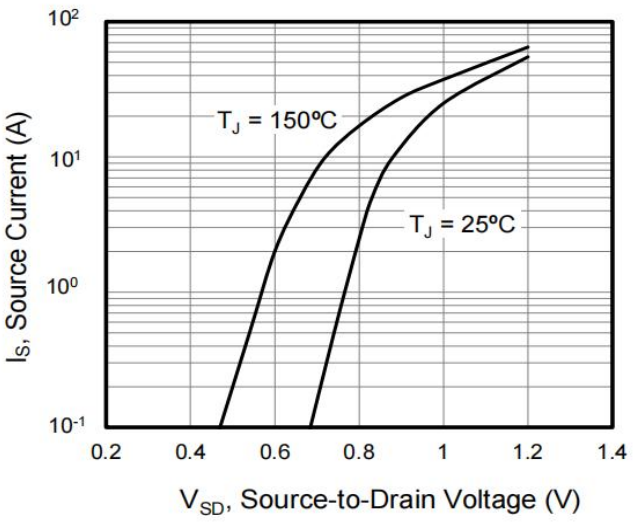


Figure 3. Drain Current vs. Temperature

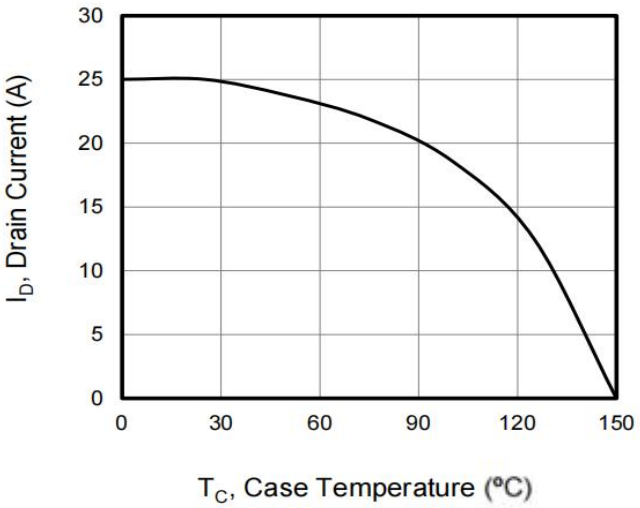


Figure 4. BV_{DSS} Variation vs. Temperature

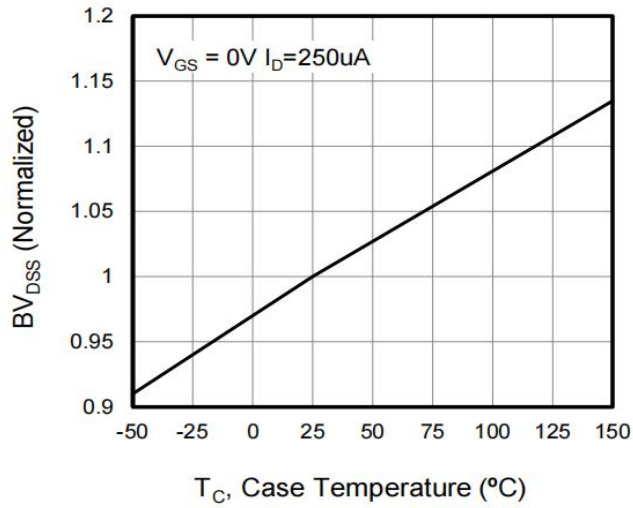


Figure 5. Transfer Characteristics

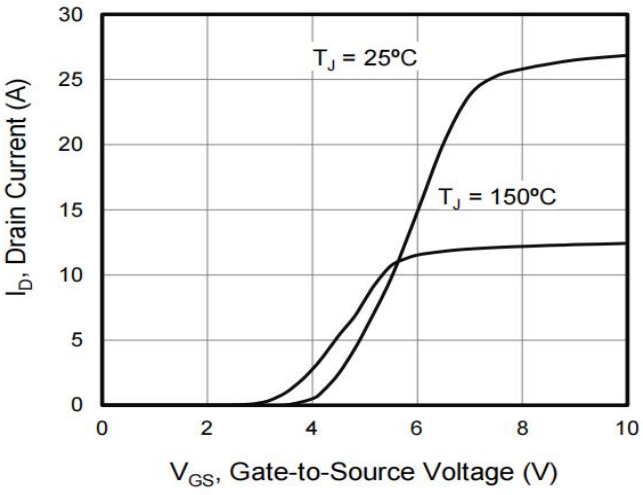


Figure 6. On-Resistance vs. Temperature

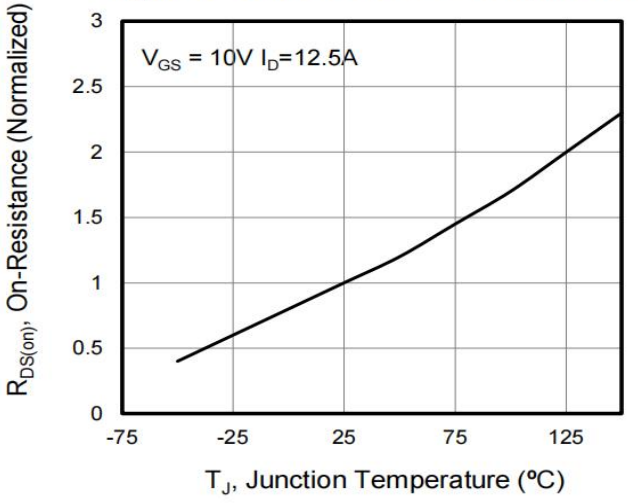


Figure 7. Capacitance

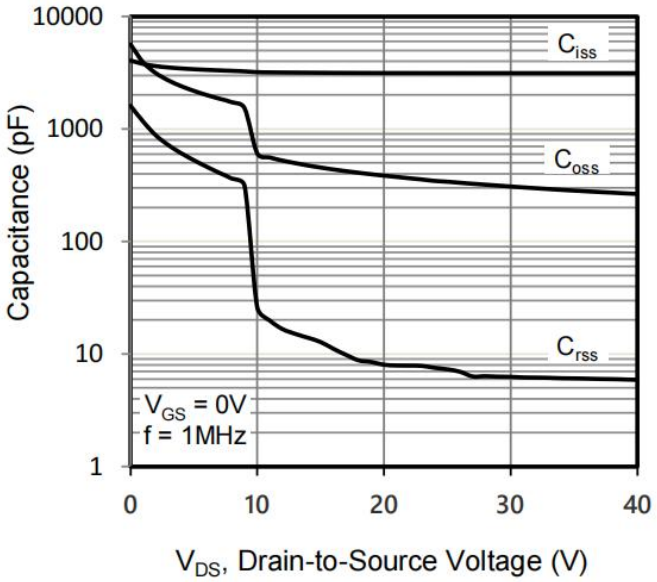


Figure 8. Gate Charge

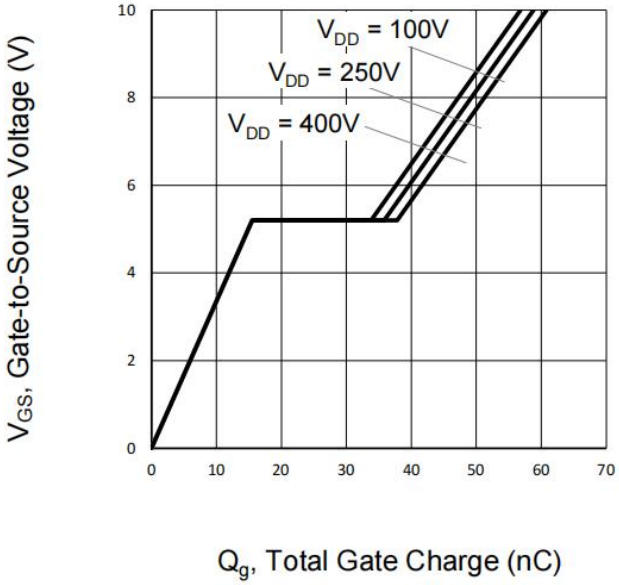
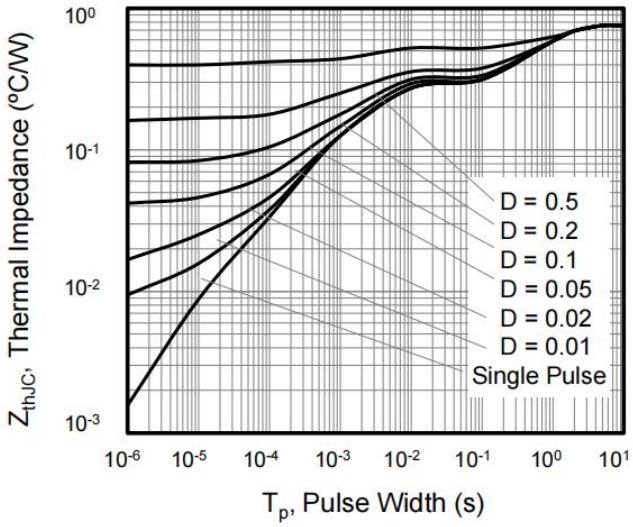


Figure 9. Transient Thermal Impedance



Test Circuits and Waveforms

Figure A: Gate Charge Test Circuit and Waveform

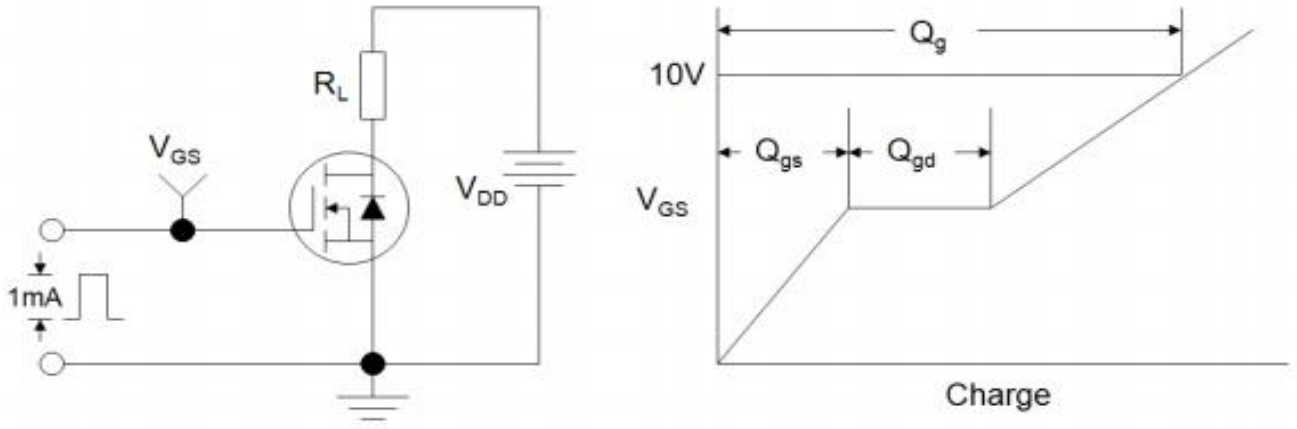


Figure B: Resistive Switching Test Circuit and Waveform

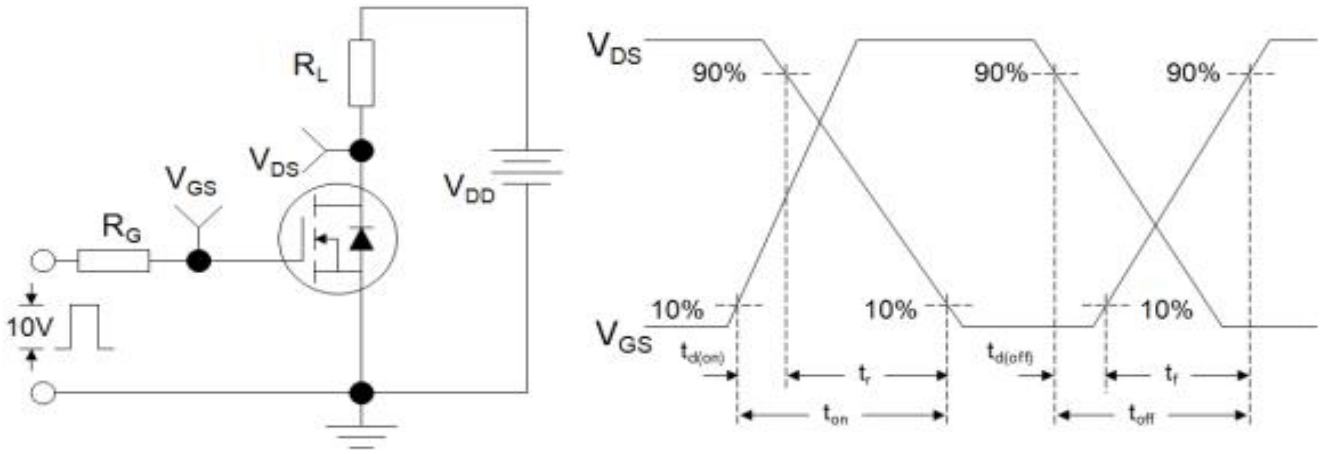
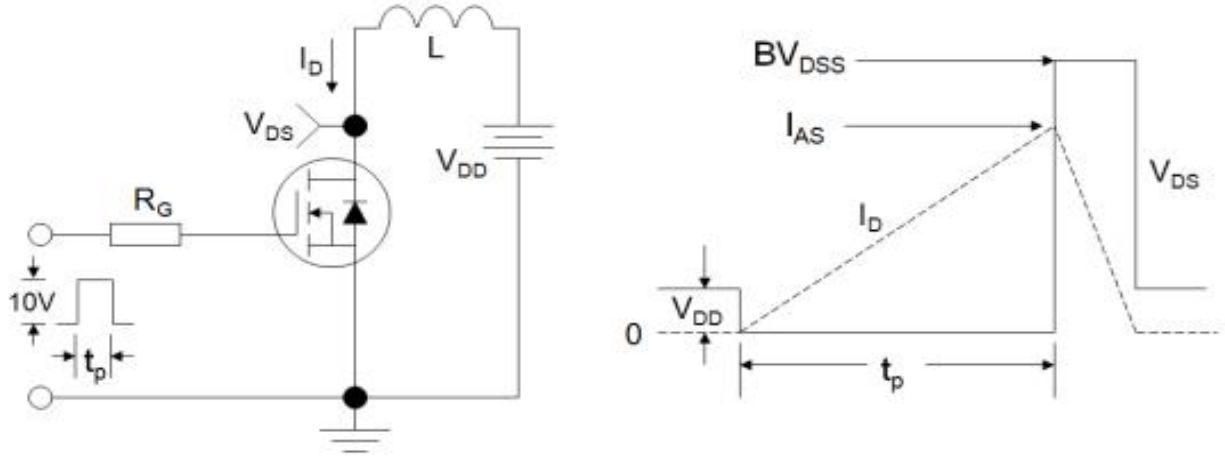
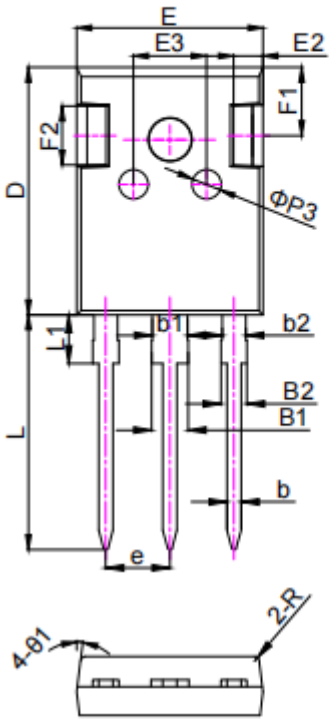
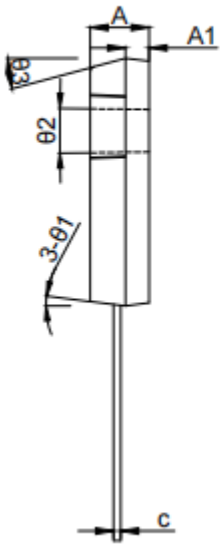


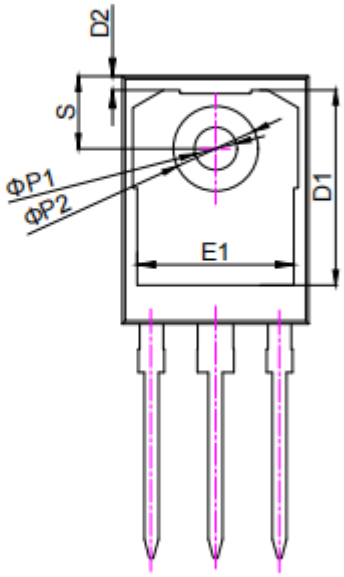
Figure C: Unclamped Inductive Switching Test Circuit and Waveform



Package outline drawing(TO-247 Unit: mm)







SYMBOL	MM			SYMBOL	MM		
	MIN	NOM	MAX		MIN	NOM	MAX
*A	4.80	5.00	5.20	F1	5.70	5.80	5.90
A1	1.90	2.00	2.10	F2	4.85	5.00	5.15
*b	1.10	1.20	1.30	*e	5.39	5.44	5.49
b1	2.90	3.00	3.10	*L	19.72	19.92	20.12
b2	1.95	2.00	2.05	*L1	4.03	4.13	4.23
*B1	3.00	3.10	3.20	θ1	5°	7°	9°
*B2	2.00	2.10	2.20	θ2	1°	2°	3°
*c	0.50	0.6	0.70	θ3	13°	15°	17°
*D	20.80	21	21.20	*ΦP1	3.50	3.60	3.70
D1	16.40	16.55	16.70	ΦP2	7.09	7.19	7.29
D2	1.07	1.17	1.27	ΦP3	2.40	2.50	2.60
*E	15.60	15.80	16.00	*Q1	2.31	2.41	2.51
E1	13.11	13.26	13.41	S	6.05	6.15	6.25
E2	2.40	2.50	2.60	R	0.30	0.40	0.50
E3	6.10	6.20	6.30	带*为关键检验尺寸			

注:
1.表面粗糙度 Ra =1.14±0.20um
2. 带*为关键检验尺寸

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