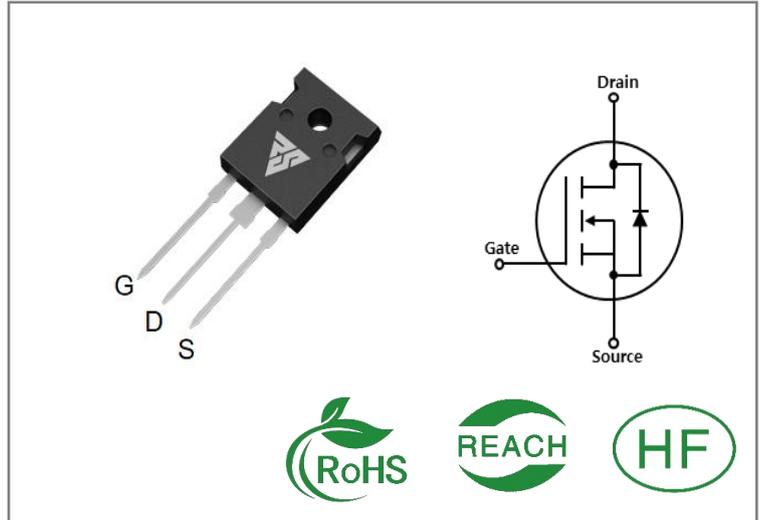


ID	$R_{DS(ON)}$ (Typ)	VDSS
30A	110m Ω	600V


Applications:

- Switch Mode Power Supply(SMPS)
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)
- AC-DC Switching Power Supply

Features:

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

Ordering Information

Part Number	Package	Marking	Packing	Qty.
RS60R130W	T0-247	RS60R130W	Tube	30 PCS

Absolute Maximum Ratings $T_c = 25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	RS60R130W	Units
VDSS	Drain-to-Source Voltage	600	V
ID	Continuous Drain Current $T_C=25^\circ\text{C}$	30	A
ID	Continuous Drain Current $T_C=100^\circ\text{C}$	19.5	
IDM	Pulsed Drain Current (Note*1)	90	
PD	Power Dissipation	162	W
VGS	Gate- to- Source Voltage	± 30	V
EAS	Single Pulse Avalanche Energy $I_{AS}=2\text{A}, V_{DD} = 50\text{V}, R_G = 25 \Omega, T_C=25^\circ\text{C}$	330	mJ
dv/dt	MOSFET dv/ dt ruggedness $V_{DS} = 0\text{...}400\text{V}$	50	V/ns
dv/dt	Reverse diode dv/dt $V_{DS} = 0\text{...}400\text{V}, T_j = 25^\circ\text{C}, I_{SD} \leq I_D$	15	V/ns
TL TPKG	Maximum Temperature for Soldering	300	$^\circ\text{C}$
	Leads at 0.063in(1.6mm)from Case for 10 seconds Package Body for 10 seconds	260	
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	RS60R130W	Units	Test Conditions
R θ JC	Junction-to-Case	0.77	°C / W	Drain lead soldered to water cooled heatsink, PD adjusted for a peak junction temperature of + 1 5 0 °C
R θ JA	Junction-to- Ambient	62.5		1 cubic foot chamber,free air.

OFF Characteristics TJ= 25°C unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
BVDSS	Drain- to- source Breakdown Voltage	600	--	--	V	VGS=0V,ID=250μA
IDSS	Drain- to- Source Leakage Current	--	--	1	μA	VDS=600V,VGS=0 V
IGSS	Gate- to- Source Forward Leakage	--	--	100	nA	VGS=30V ,VDS=0V
	Gate- to- Source Reverse Leakage	--	--	-100		VGS=-30V ,VDS=0 V

ON Characteristics TJ=25°C unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
RDS(on)	Static Drain- to- Source On-Resistance(Note*2)	--	110	130	mΩ	VGS=10V,ID=15A
VGS(TH)	Gate Threshold Voltage	2	--	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	--	30	--	nS	VDS=300V ID=30A RG=25Ω
trise	Rise Time	--	45	--		
td(OFF)	Turn- OFF Delay Time	--	145	--		
tfall	Fall Time	--	36	--		

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	1908	--	pF	VGS=0V VDS=50V f=400kHz
Coss	Output Capacitance	--	129	--		
Crss	Reverse Transfer Capacitance	--	2.9	--		
Qg	Total Gate Charge	--	50	--	nC	VDS=480V ID=30A VGS=10V
Qgs	Gate- to- Source Charge	--	10	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	14	--		

Source- Drain Diode Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
IS	Continuous Source Current	--	--	30	A	Integral pn- diode in MOSFET
ISM	Maximum Pulsed Current	--	--	90	A	
VSD	Diode Forward Voltage	--	--	1.4	V	IS=30A,VGS=0V
trr	Reverse Recovery Time	--	445	--	nS	VDD=100V IS=30A,di/dt=100A /μs
Qrr	Reverse Recovery Charge	--	6.4	--	μC	

Notes:

- * 1. Repetitive rating,pulse width limited by maximum junction temperature.
- * 2. Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

Typical Feature Curve

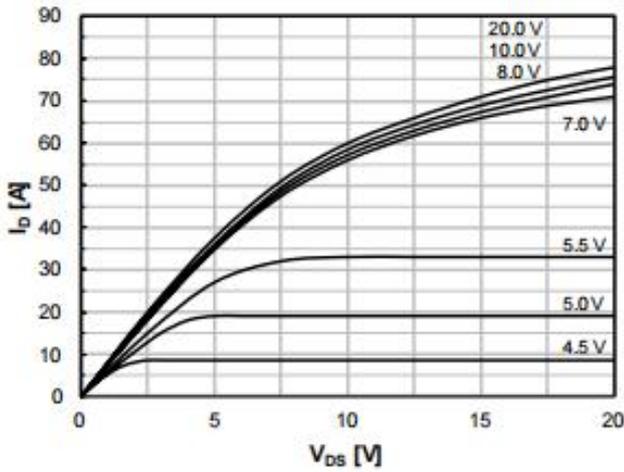


Fig. 1 Output Characteristics

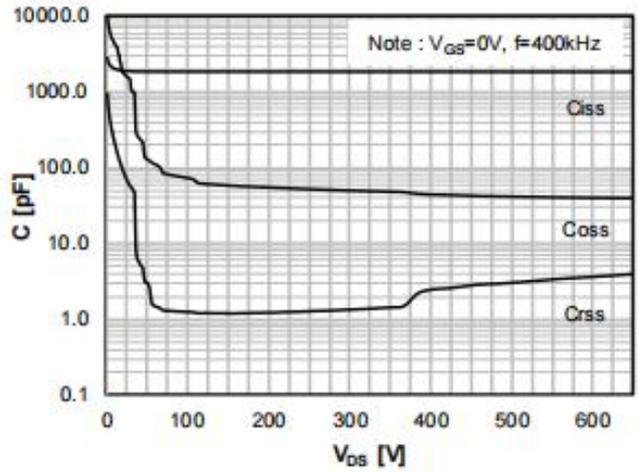


Fig. 2 Capacitances

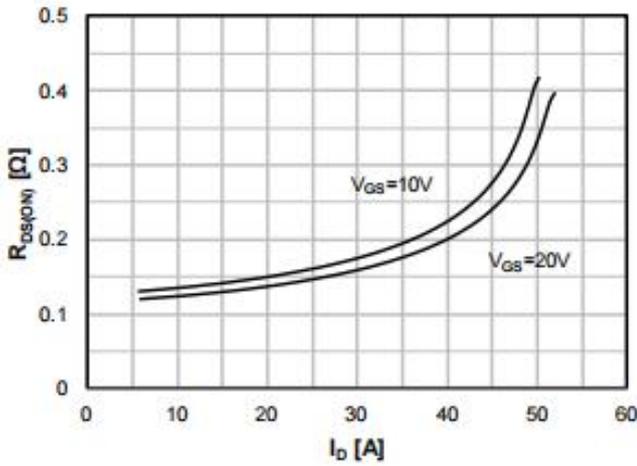


Fig. 3 On-state Resistance

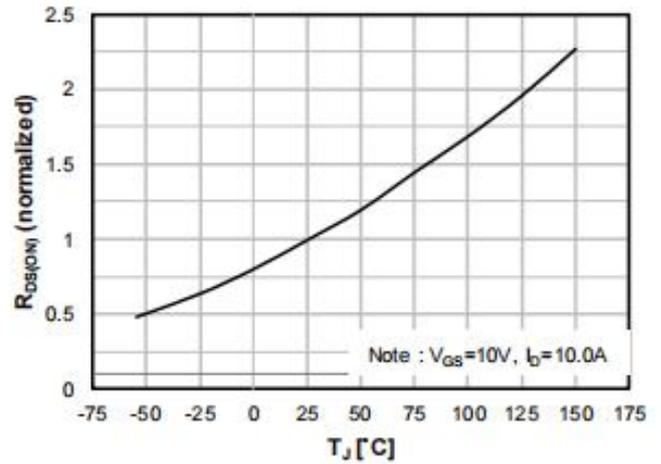


Fig. 4 On-state Resistance with Temperature

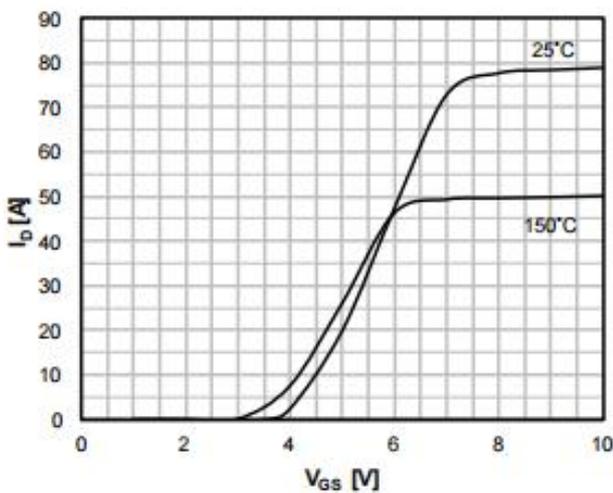


Fig. 5. Transfer Characteristics

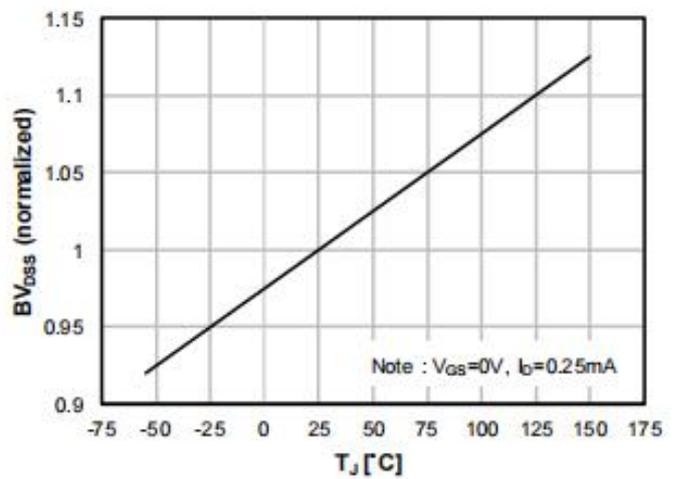


Fig. 6. Breakdown Voltage with Temperature

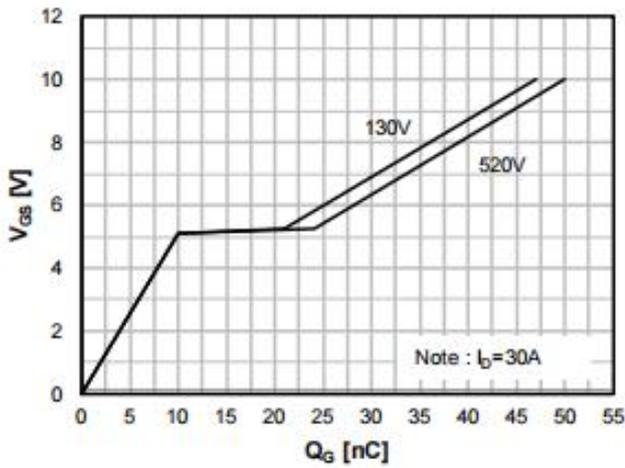


Fig 7. Gate Charge

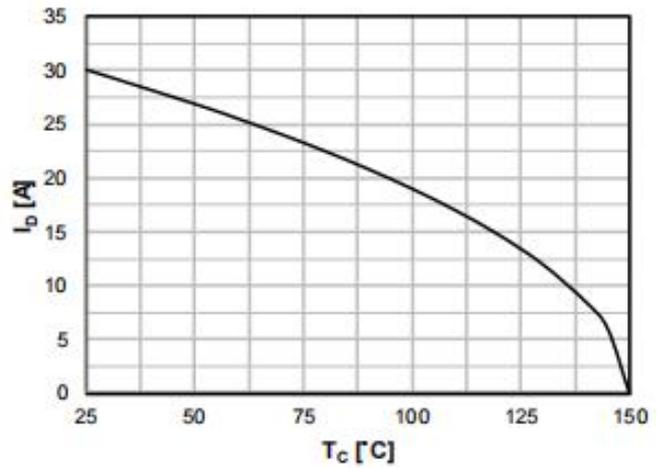


Fig 8. Maximum Drain Current

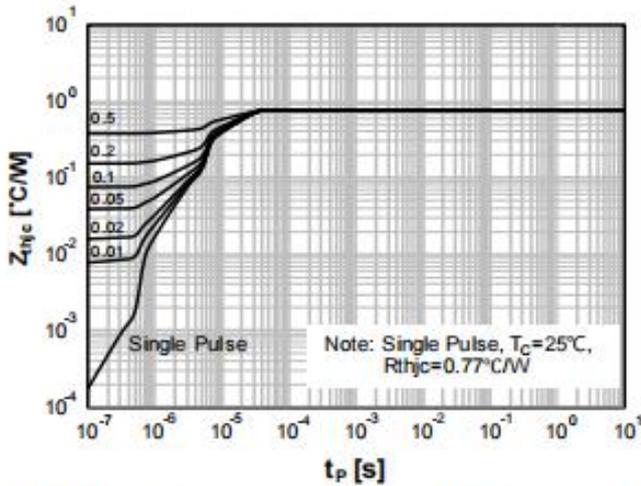


Fig 9. Maximum Transient Thermal Characteristics

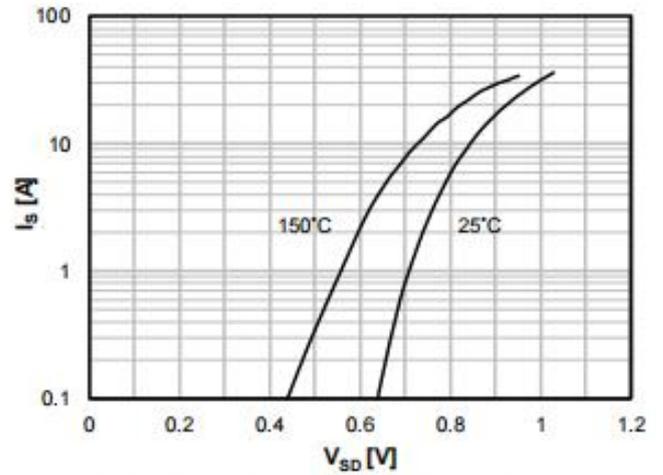


Fig 10. Body Diode Characteristics

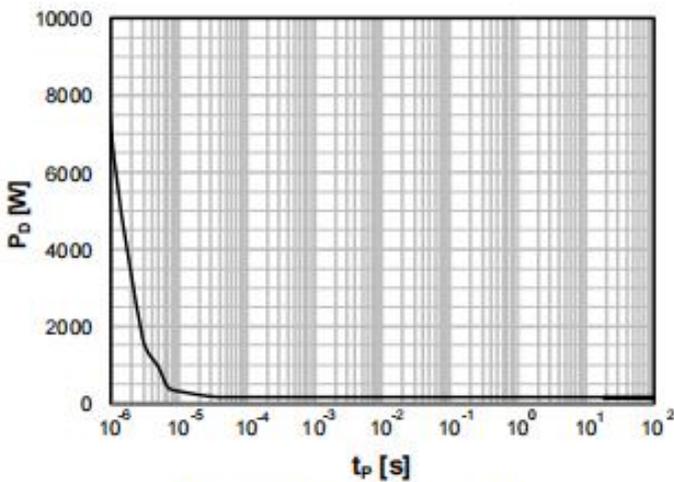


Fig 11. Power Dissipation

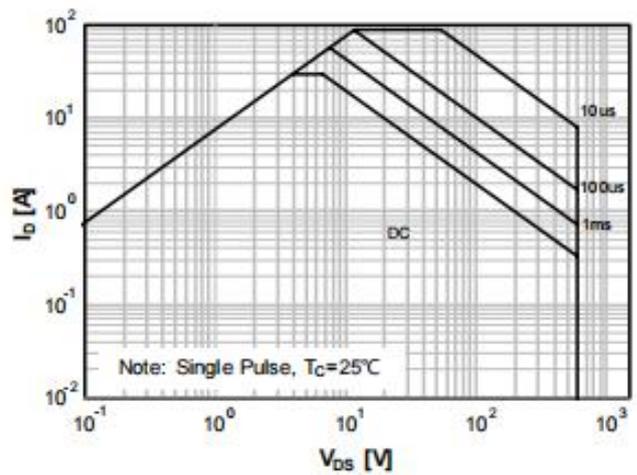


Fig 12. Safe Operating Area

Test Circuits and Waveforms

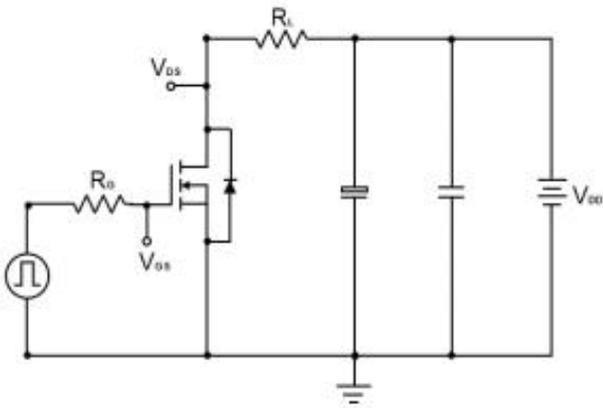


Fig 13. Test circuit for resistive load switching times

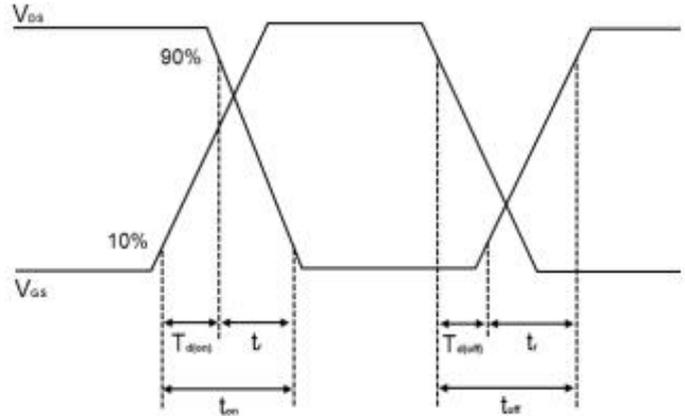


Fig 14. Switching times waveform

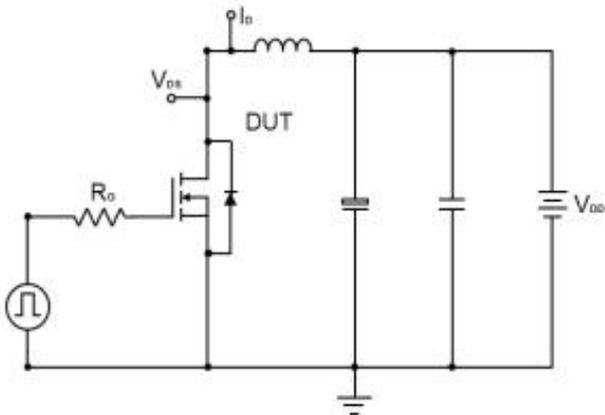


Fig 15. Test circuit for unclamped inductive load

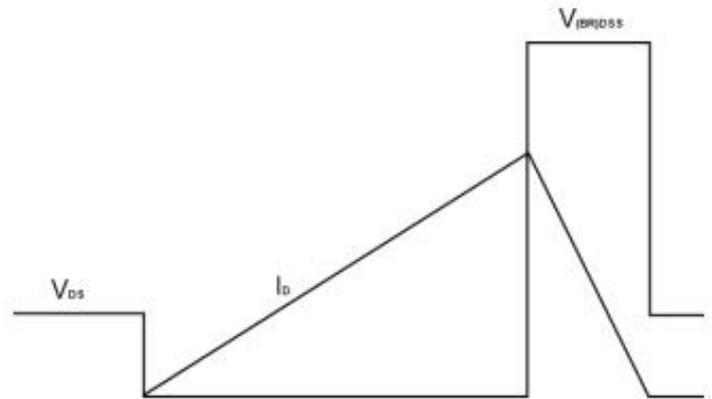


Fig 16. Unclamped inductive waveform

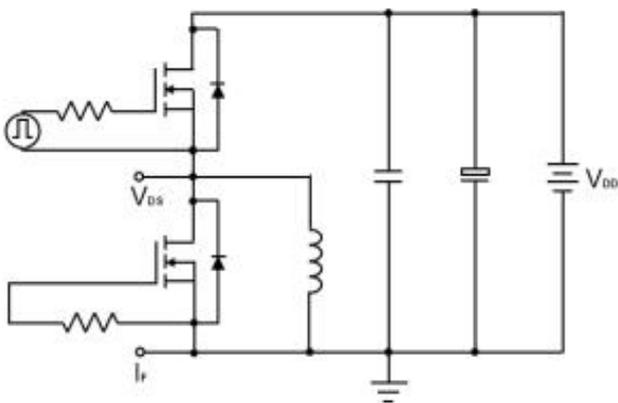


Fig 17. Test circuit for diode

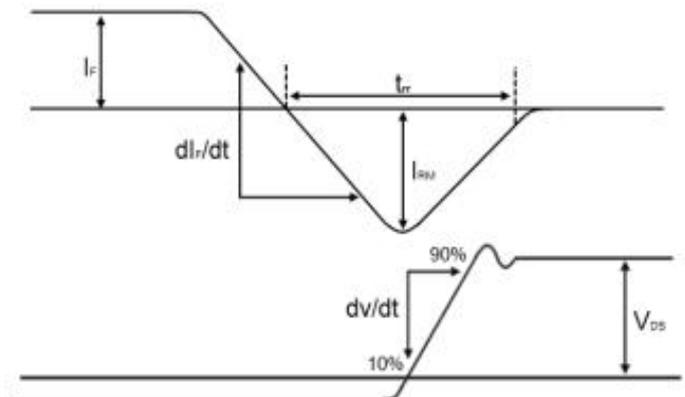
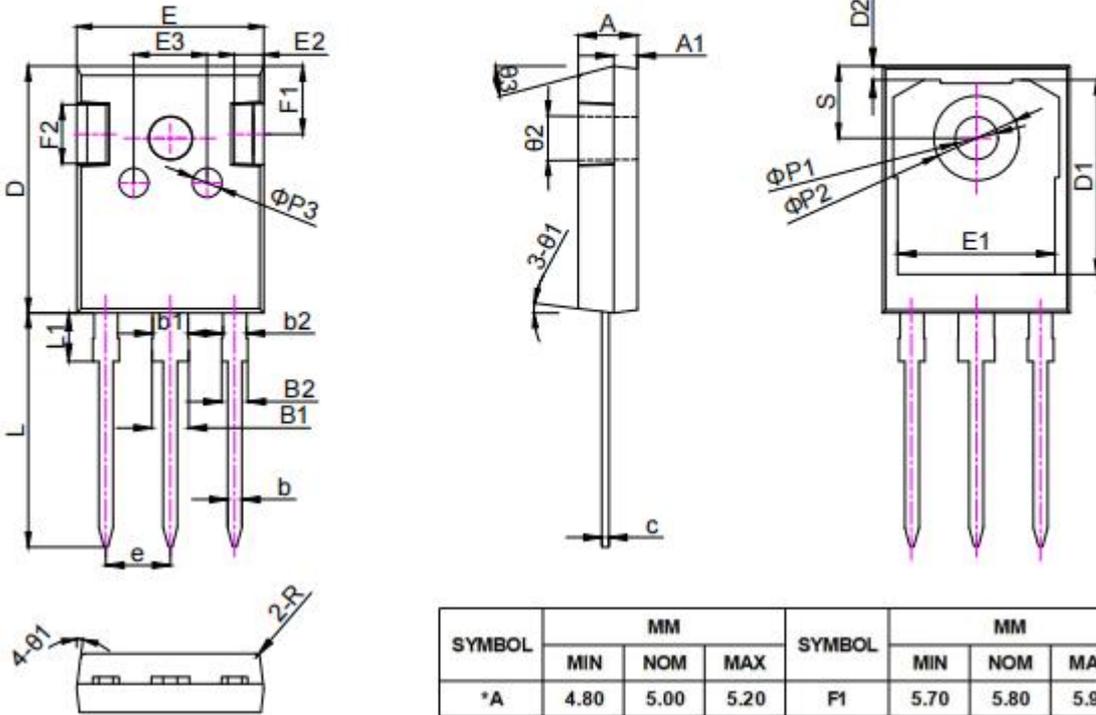


Fig 18. Diode recovery

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 $R_a = 1.14 \pm 0.20 \mu m$
2.带*为关键检验尺寸

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