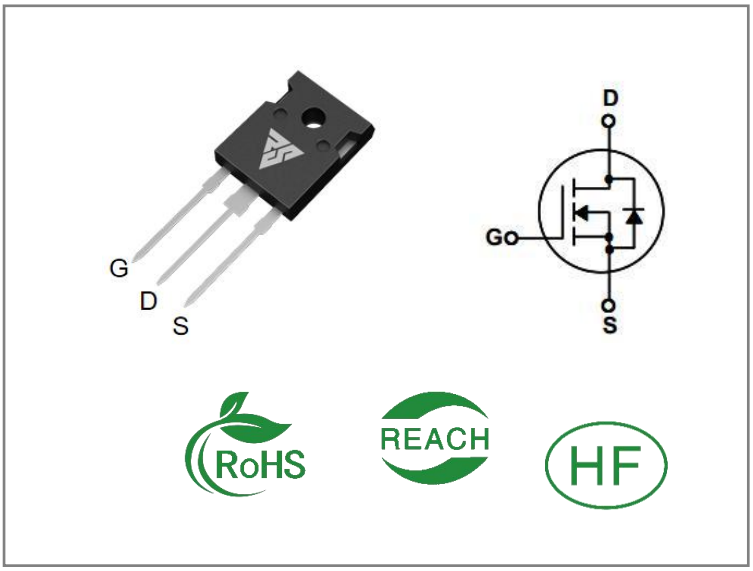
ID	R_{DS}(ON)(Typ)	VDSS
53A	60mΩ	600V



Applications:

- Sever
- EV Charging
- Telecom
- Solar

Features:

- Ultra fast body diode
- Low gate charge
- Low RDS(on) per chip area(Low FOM)
- Very low switching and conduction loss
- Extremely high commutation ruggedness

Ordering Information

Part Number	Package	Marking	Packing	Qty.
RSF60R070W	T0-247-3	RSF60R070W	Tube	30 PCS

Absolute Maximun Ratings Tc= 25℃ unless otherwise specified

Symbol	Parameter	RSF60R070W	Units
VDSS	Drain-to-Source Voltage	600	V
ID	Continuous Drain Current TC=25℃	53	A
ID	Continuous Drain Current TC=100℃	33	
IDM	Pulsed Drain Current (Note*1)	149	
PD	Power Dissipation	357	W
VGS	Gate- to- Source Voltage	±30	V
EAS	Single Pulse Avalanche Engergy L=10mH,VDS = 50V, IAS=5.1A，TJ=25℃	325	mJ
TL TPKG	Maximum Temperature for Soldering Leads at 0.063in(1.6mm)from Case for 10 seconds Package Body for 10 seconds	300 260	℃
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	RSF60R070W	Units	Test Conditions
RθJC	Junction-to-Case	0.35	℃/ W	Drain lead soldered to water cooled heatsink, PD adjusted for a peak junction temperature of + 1 5 0 ℃
RθJA	Junction-to- Ambient	26.7		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	600	--	--	V	VGS=0V ID=250μA
IDSS	Drain- to- Source Leakage Current	--	--	5	μA	VDS=600V 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	--	60	70	mΩ	VGS=10V ID=18A
VGS(TH)	Gate Threshold Voltage	3	4	5	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=400V ID=21A RG=3Ω VGS=10V
trise	Rise Time	--	44	--		
td(OFF)	Turn- OFF Delay Time	--	81	--		
tfall	Fall Time	--	32	--		

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
Ciss	Input Capacitance	--	3207	--	pF	VGS=0V VDS=100V f=1.0MHz
Coss	Output Capacitance	--	49	--		
Crss	Reverse Transfer Capacitance	--	2	--		
RG	Gate Resistance	--	5	--	Ω	VDS=0V VGS=0V f=1.0MHz
Qg	Total Gate Charge	--	76	--	nC	VDS=480V ID=21A VGS=10V
Qgs	Gate- to- Source Charge	--	20	--		
Qgd	Gate-to-Drain(" Miller") Charge	--	34	--		

Source- Drain Diode Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
IS	Continuous Source Current	--	--	53	A	Integral pn- diode in MOSFET
ISM	Maximum Pulsed Current	--	--	287	A	
VSD	Diode Forward Voltage	--	--	1.0	V	IS=42A VGS=0V
trr	Reverse Recovery Time	--	164	--	nS	VR=400V IS=21A di/dt=100A/μs
Qrr	Reverse Recovery Charge	--	1	--	nC	
Irr	Reverse recovery curren	--	12	--	A	

Notes:

* 1. Repetitive rating, pulse width limited by maximum junction temperature.

Typical Feature Curve

Figure 1. Output Characteristics

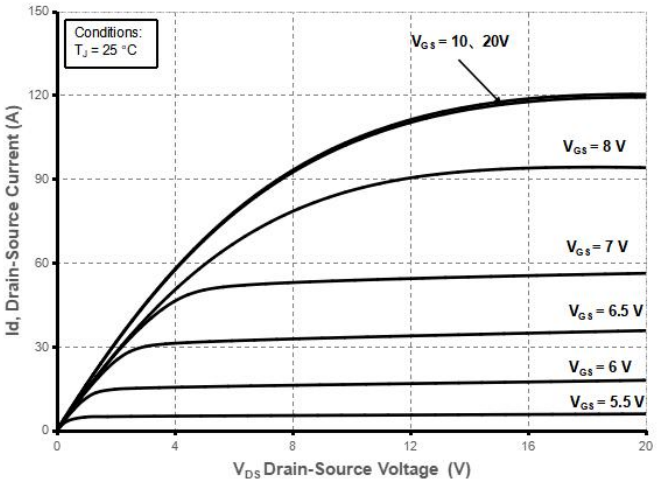


Figure 2. Capacitance

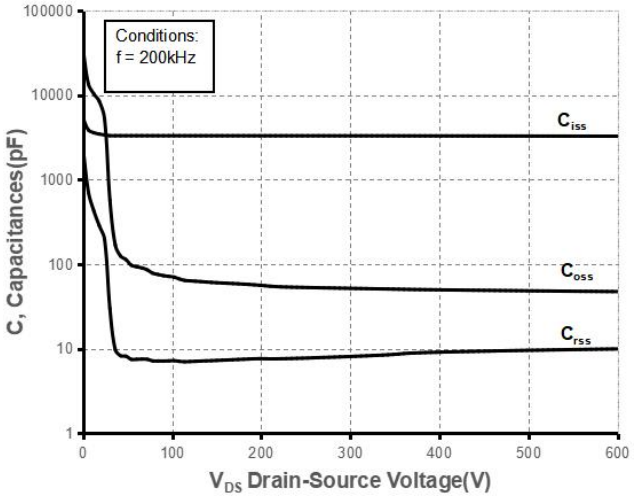


Figure 3. On-state Resistance

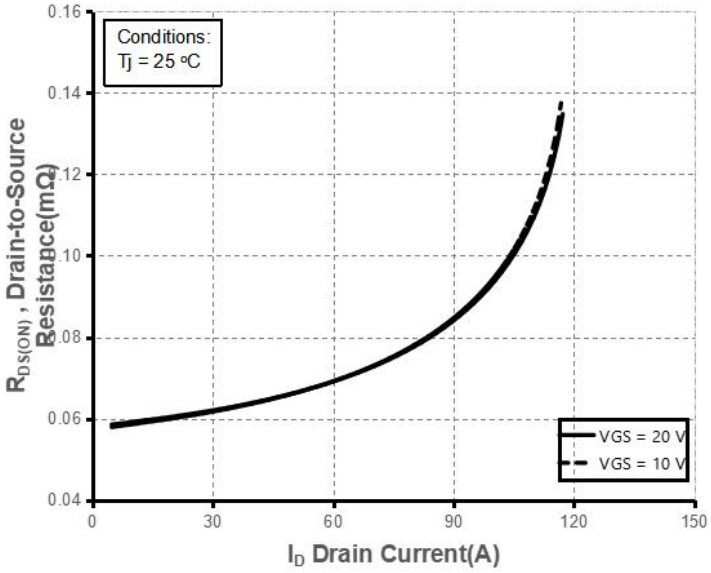


Figure 4. On-state Resistance with Temperature

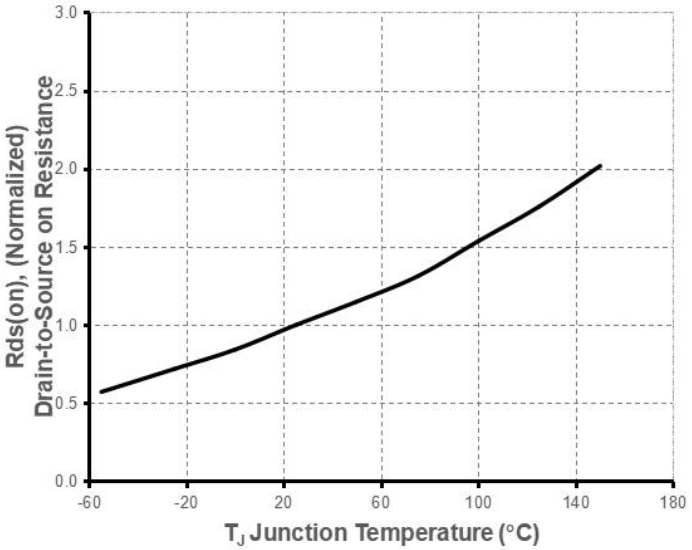


Figure 5. Transfer Characteristics

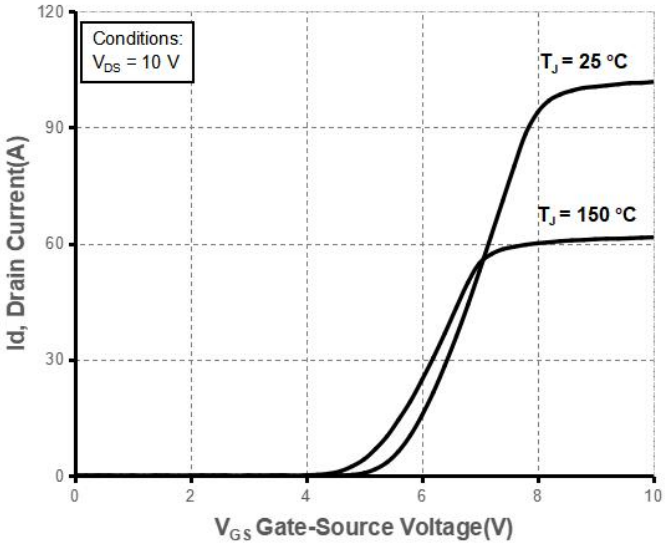


Figure 6. Breakdown Voltage with Temperature

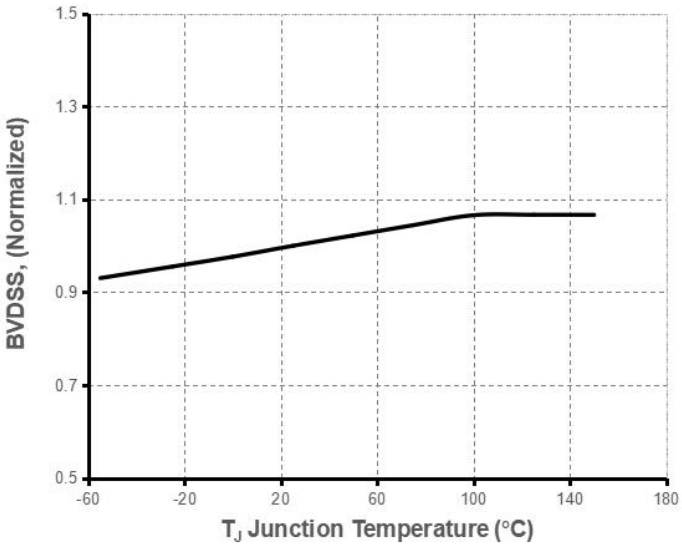


Figure 7. Gate Charge

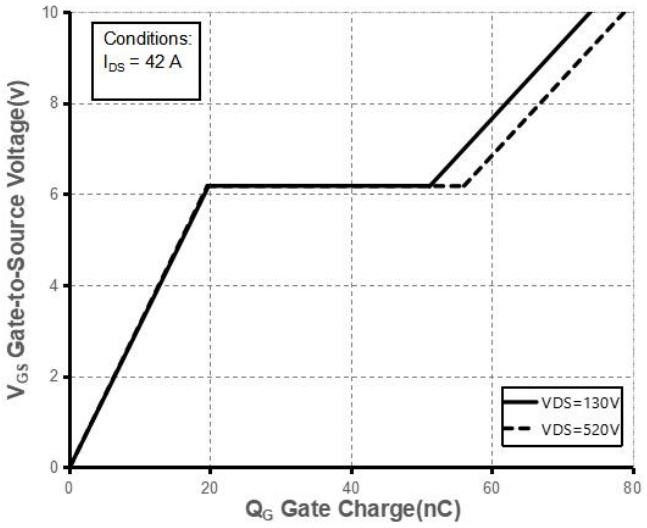


Figure 8. Maximum Drain Current

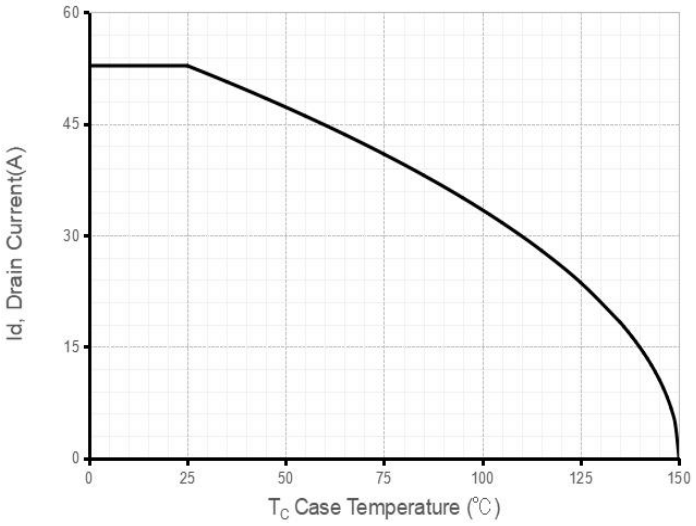


Fig 9. Safe Operating Area

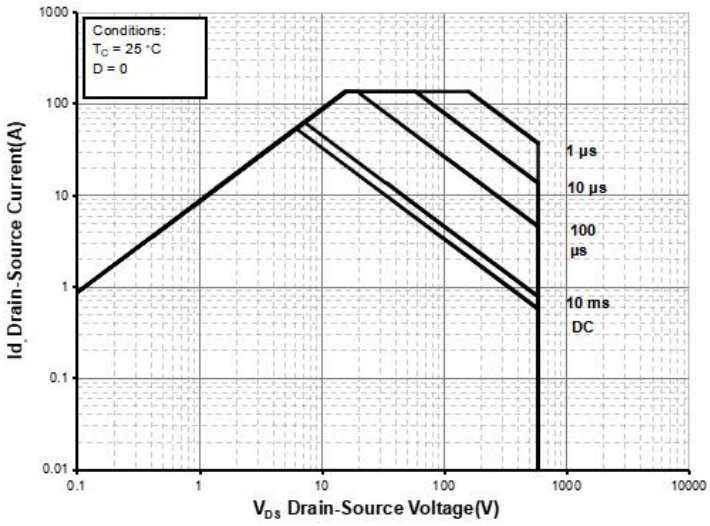


Fig 10. Body Diode Characteristics

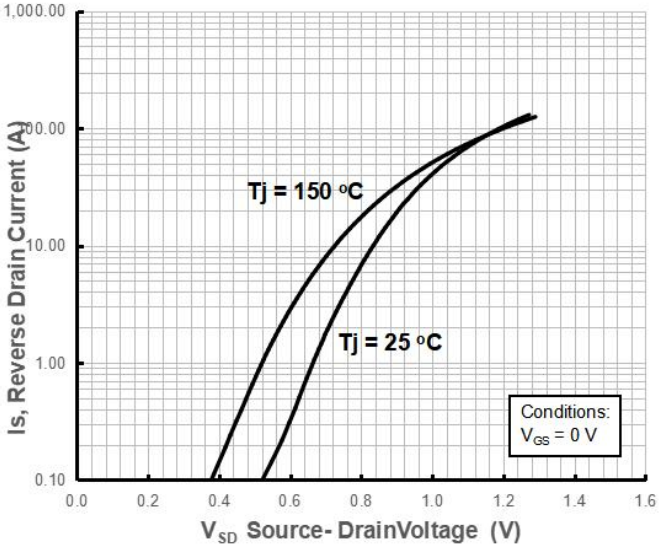
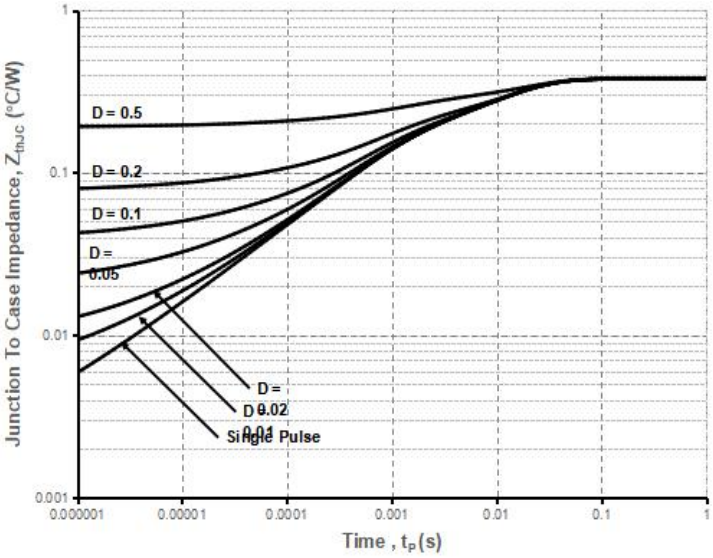


Fig 11. Maximum Transient Thermal Characteristics



Test Circuits and Waveforms

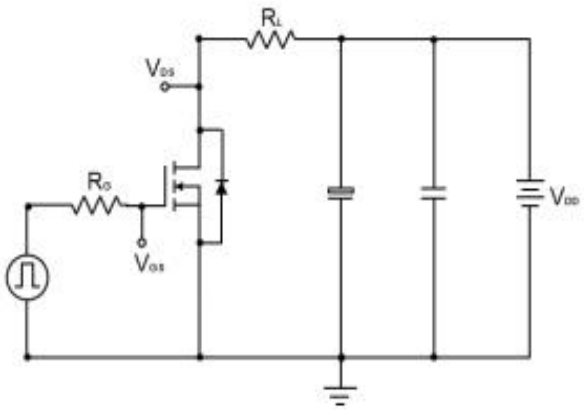


Fig 13. Test circuit for resistive load switching times

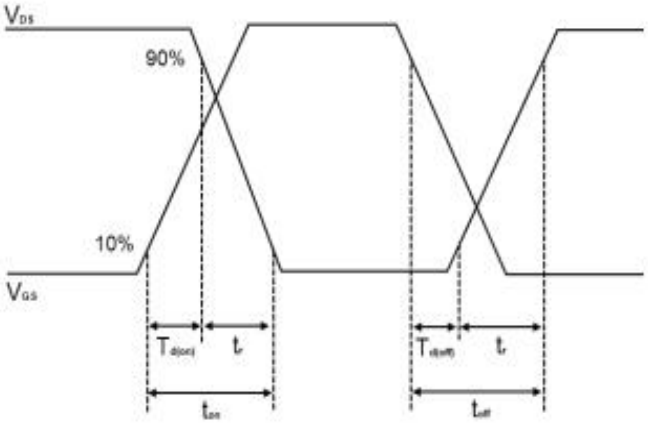


Fig 14. Switching times waveform

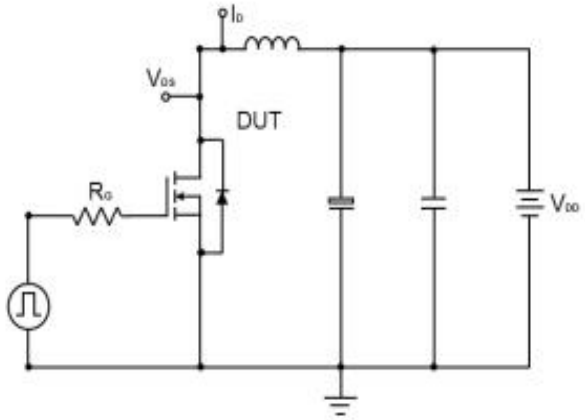


Fig 15. Test circuit for unclamped inductive load

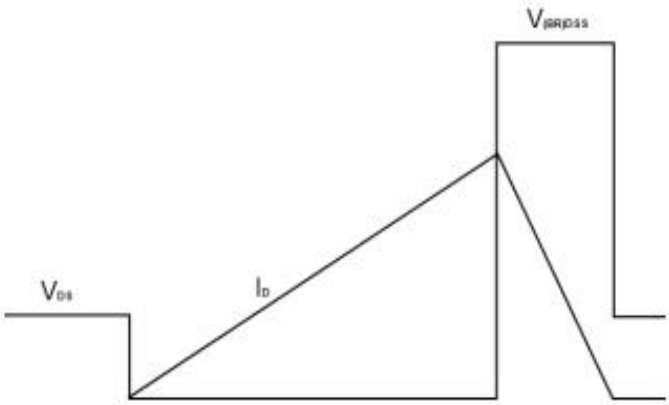


Fig 16. Unclamped inductive waveform

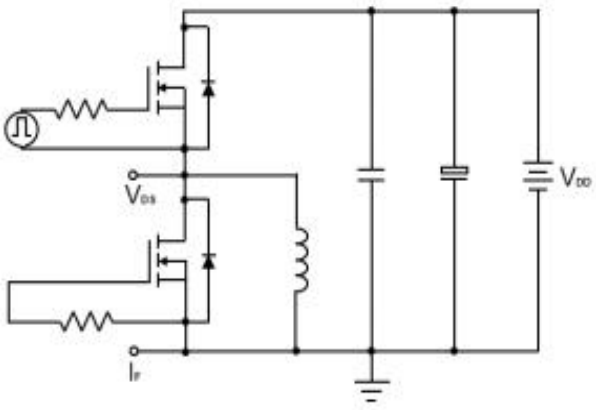


Fig 17. Test circuit for diode

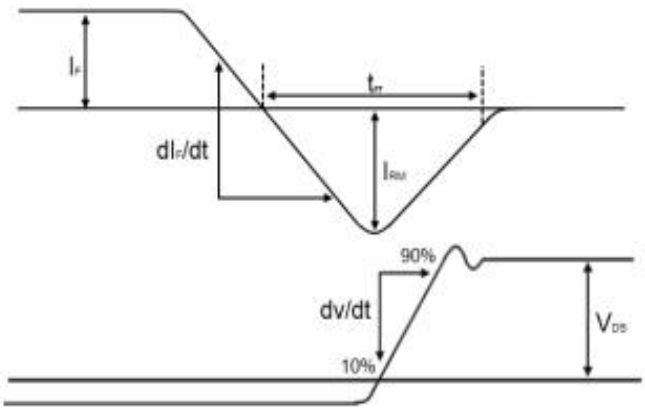
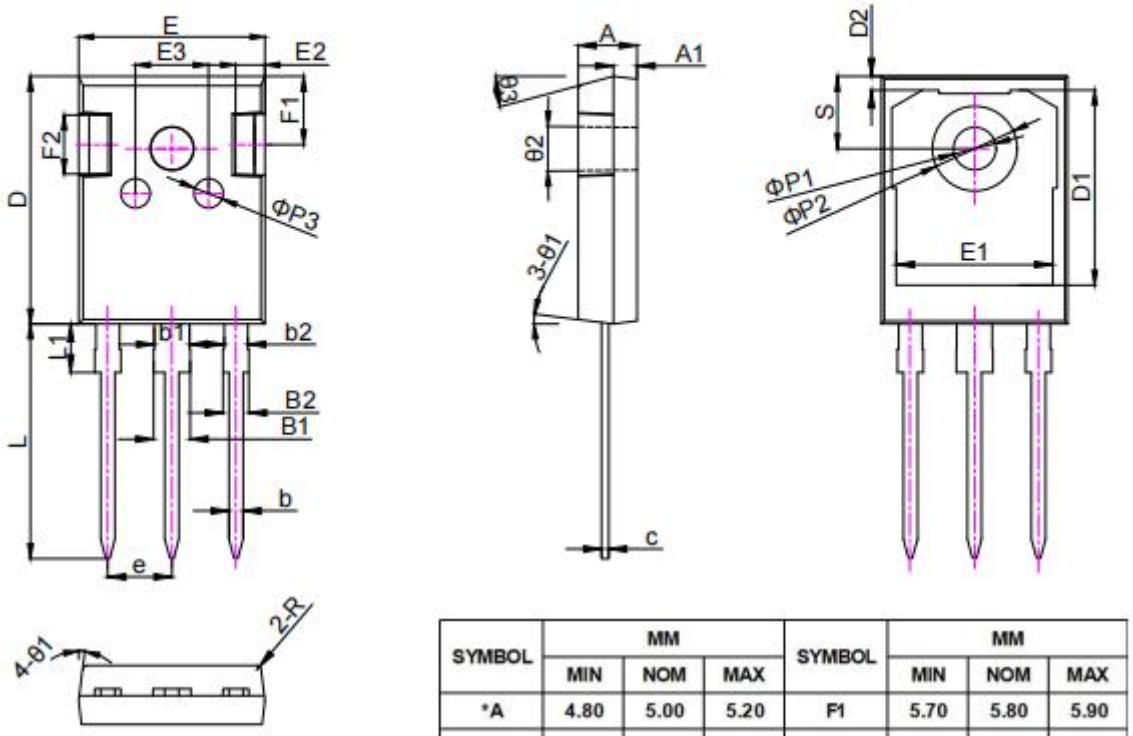


Fig 18. Diode recovery

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 Ra =1.14±0.20um
2. 带*为关键检验尺寸

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