



**MAXIMUM RATINGS**, at  $T_j = 25^\circ\text{C}$ , unless otherwise specified

PARAMETER		SYMBOL	RATING	UNIT
Drain-source Voltage		$V_{DS}$	200	V
Gate-source Voltage		$V_{GS}$	$\pm 20$	V
Drain current	$T_C=25^\circ\text{C}$	$I_D$	100	A
	$T_C=100^\circ\text{C}$		71	A
<sup>1)</sup> Pulsed drain current	$T_C=25^\circ\text{C}$	$I_{DM}$	400	A
Total power dissipation	$T_C=25^\circ\text{C}$	$P_{tot}$	313	W
	$T_C=100^\circ\text{C}$		156	W
<sup>2)</sup> Avalanche energy, single pulse		$E_{AS}$	365	mJ
Operating and storage temperature		$T_j, T_{stg}$	- 55 ~ 175	$^\circ\text{C}$

**THERMAL CHARACTERISTICS**

PARAMETER		SYMBOL	RATING	UNIT
Thermal resistance, junction - case		$R_{\theta JC}$	0.48	$^\circ\text{C}/\text{W}$
<sup>3)</sup> Thermal resistance, junction - ambient		$R_{\theta JA}$	40	$^\circ\text{C}/\text{W}$

**ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25°C)****STATIC CHARACTERISTICS**

PARAMETER	Symbol	Min.	Typ.	Max.	Unit	Conditions / Note
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	200	-	-	V	V <sub>GS</sub> =0 V, I <sub>D</sub> =250 μA
Gate threshold voltage	V <sub>GS(th)</sub>	2.25	3.00	3.75		V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μA
Zero gate voltage drain current	I <sub>DSS</sub>	-	-	10	μA	V <sub>DS</sub> =200 V, V <sub>GS</sub> =0 V
Gate-source leakage current	I <sub>GSS</sub>	-	-	± 100	nA	V <sub>GS</sub> =±20 V, V <sub>DS</sub> =0 V
Drain-source on-state resistance	R <sub>DS(on)</sub>	-	9.8	10.9	mΩ	V <sub>GS</sub> =10 V, I <sub>D</sub> =50 A
<sup>4)</sup> Gate resistance	R <sub>G</sub>	-	2.8	-	Ω	f=1MHz
<sup>4)</sup> Transconductance	g <sub>fs</sub>	-	94	-	S	V <sub>DS</sub> =10 V, I <sub>D</sub> =50 A

**<sup>4)</sup> DYNAMIC CHARACTERISTICS**

PARAMETER	Symbol	Min.	Typ.	Max.	Unit	Conditions / Note
Input capacitance	C <sub>iss</sub>	-	6951	-	pF	V <sub>GS</sub> =0 V, V <sub>DS</sub> =100 V, f=1 MHz
Output capacitance	C <sub>oss</sub>	-	428	-		
Reverse transfer capacitance	C <sub>rss</sub>	-	12	-		
Turn-on delay time	t <sub>d(on)</sub>	-	30	-	ns	V <sub>DD</sub> =100 V, V <sub>GS</sub> =10 V, I <sub>D</sub> =50 A, R <sub>G,ext</sub> =3Ω
Rise time	t <sub>r</sub>	-	13	-		
Turn-off delay time	t <sub>d(off)</sub>	-	64	-		
Fall time	t <sub>f</sub>	-	8	-		

**<sup>4)</sup> GATE CHARGE CHARACTERISTICS**

PARAMETER	Symbol	Min.	Typ.	Max.	Unit	Conditions / Note
Gate to source charge	Q <sub>gs</sub>	-	34	-	nC	V <sub>DD</sub> =100 V, I <sub>D</sub> =50 A, V <sub>GS</sub> =0 to 10 V
Gate charge at threshold	Q <sub>gs(th)</sub>	-	19	-		
Gate to drain charge	Q <sub>gd</sub>	-	9	-		
Switching charge	Q <sub>sw</sub>	-	24	-		
Gate charge total	Q <sub>g</sub>	-	80	-		
Gate plateau voltage	V <sub>plateau</sub>	-	5.4	-	V	

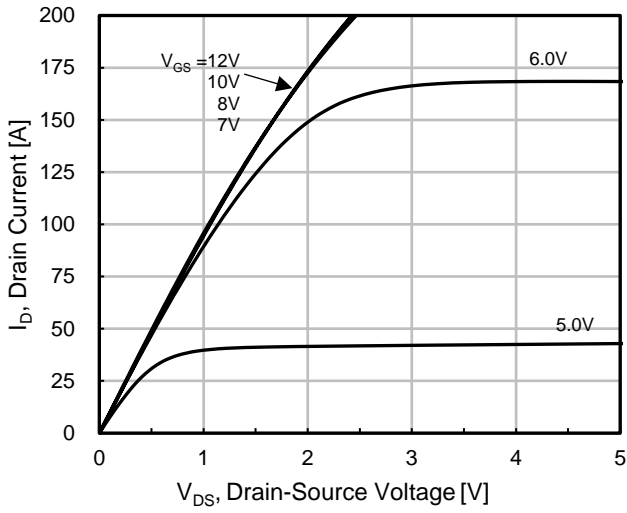
**SOURCE-DRAIN DIODE**

PARAMETER	Symbol	Min.	Typ.	Max.	Unit	Conditions / Note
<sup>4)</sup> Diode continuous forward current	I <sub>S</sub>	-	-	100	A	-
<sup>4)</sup> Diode pulse current	I <sub>S,pulse</sub>	-	-	400		pulsed; tp ≤ 10 μs
Diode forward voltage	V <sub>SD</sub>	-	0.86	1.20	V	V <sub>GS</sub> =0 V, I <sub>F</sub> =50 A
<sup>4)</sup> Reverse recovery time	t <sub>rr</sub>	-	148	-	ns	I <sub>F</sub> =50 A, d <sub>I</sub> /dt=100 A/μs
<sup>4)</sup> Reverse recovery charge	Q <sub>rr</sub>	-	785	-	nC	I <sub>F</sub> =50 A, d <sub>I</sub> /dt=100 A/μs

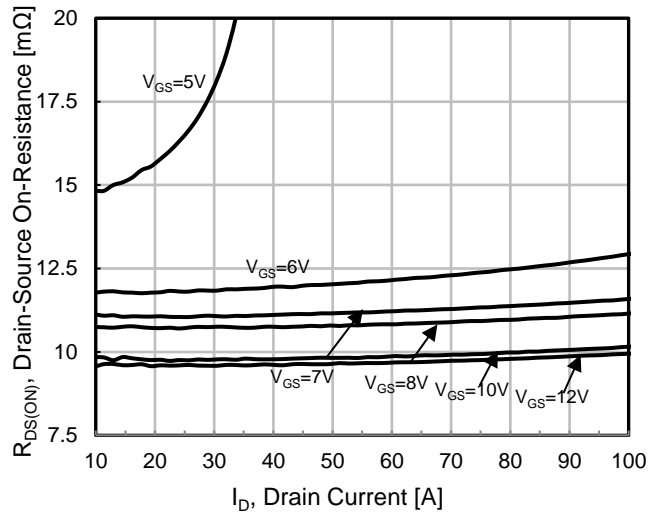
**Notes**

- Pulse width limited by T<sub>Jmax</sub>
- Starting T<sub>J</sub>=25°C, L=1mH, I<sub>AS</sub>=27A, V<sub>DD</sub>=50V, V<sub>GS</sub>=10V
- Surface mounted FR-4 board by JEDEC (jesd51-7)
- The parameter is not subject to production testing - guaranteed by design.

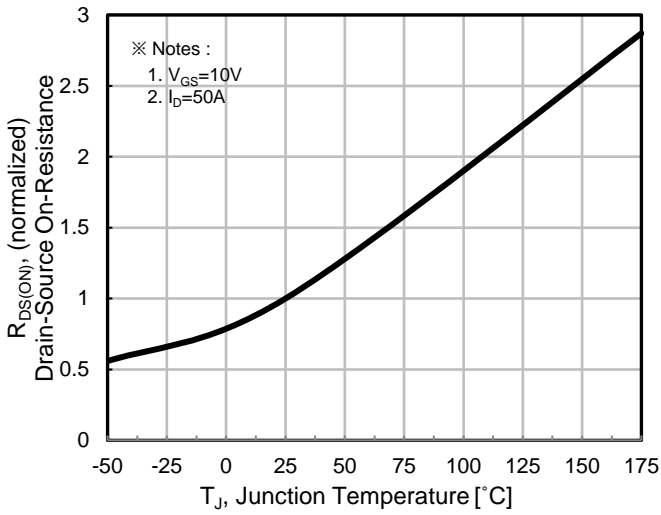
**ELECTRICAL CHARACTERISTICS DIAGRAMS**



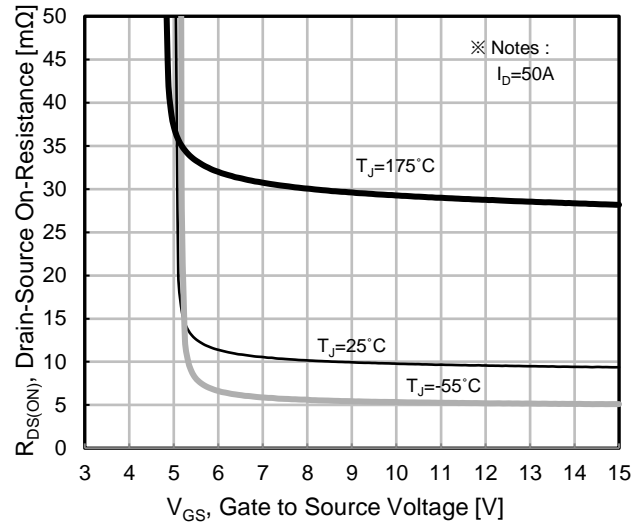
**Fig. 1. Typ. Output Characteristics**



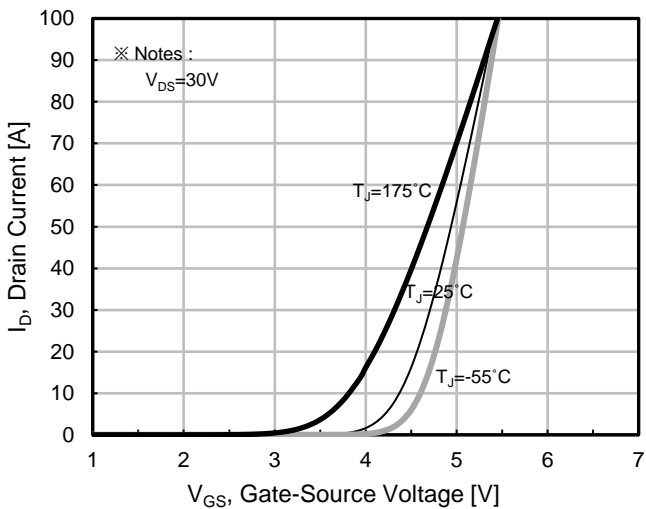
**Fig. 2. Typ. Drain to Source On-Resistance**



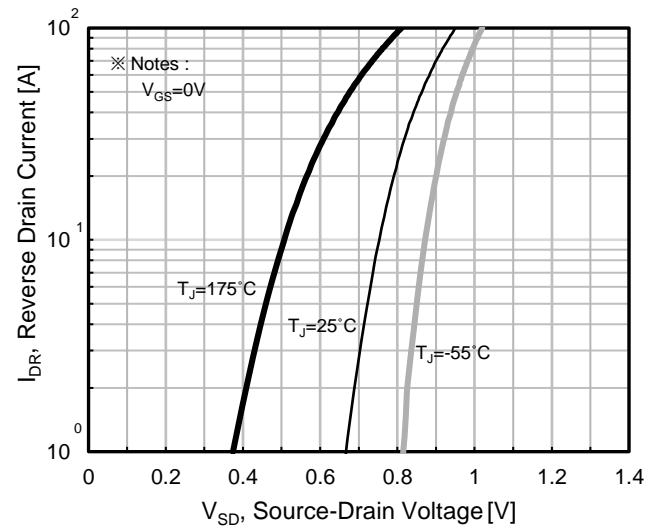
**Fig. 3. On-Resistance vs. Junction Temperature**



**Fig. 4. On-Resistance vs. Gate to Source Voltage**

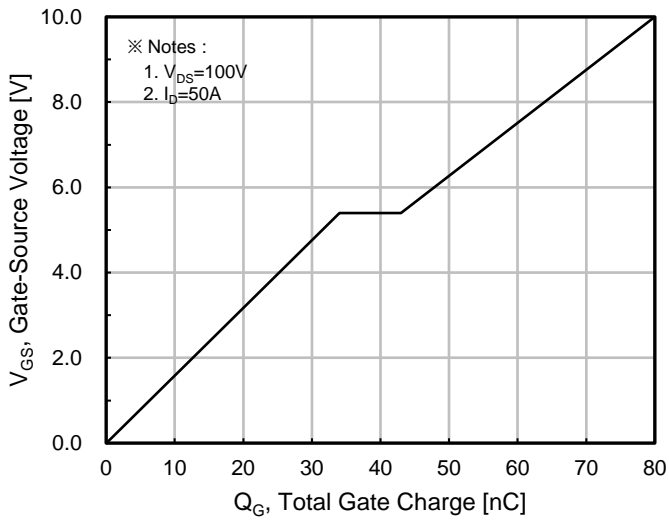


**Fig. 5. Typ. Transfer Characteristics**

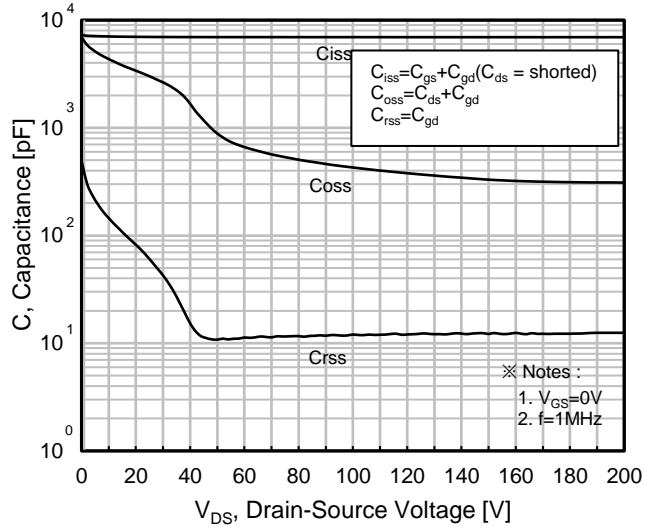


**Fig. 6. Forward Characteristics of Reverse Diode**

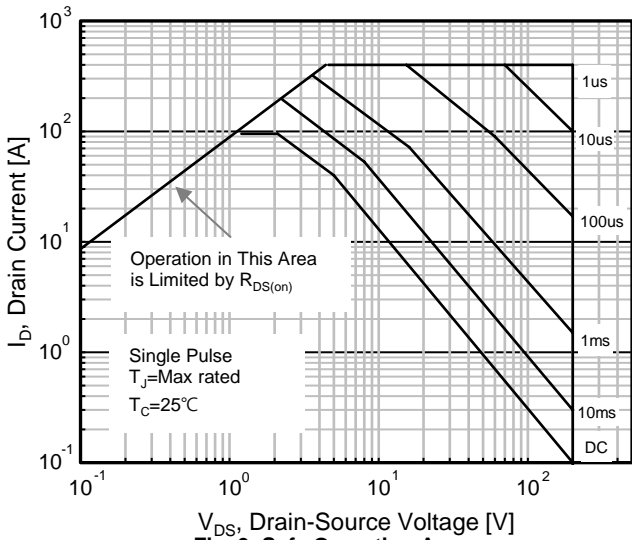
**ELECTRICAL CHARACTERISTICS DIAGRAMS**



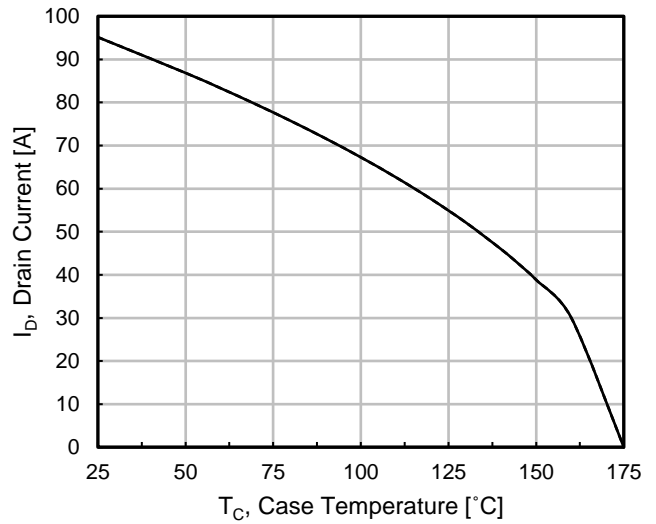
**Fig. 7. Typ. Gate Charge**



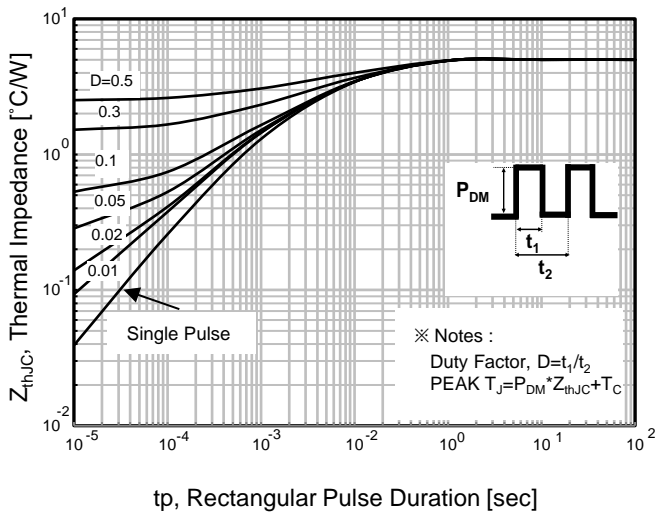
**Fig. 8. Typ. Capacitances**



**Fig. 9. Safe Operating Area**



**Fig. 10. Drain Current vs. Temperature**



**Fig. 11. Transient Thermal Impedance**

## ELECTRICAL CHARACTERISTICS DIAGRAMS

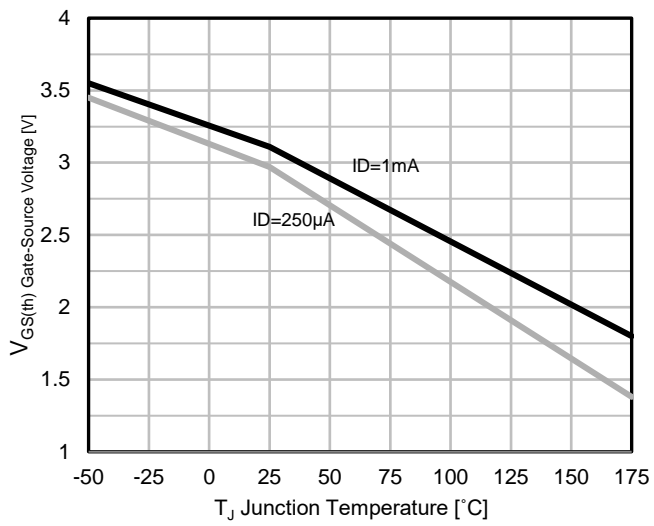


Fig.12 Gate-Source Threshold Voltage vs. Temperature

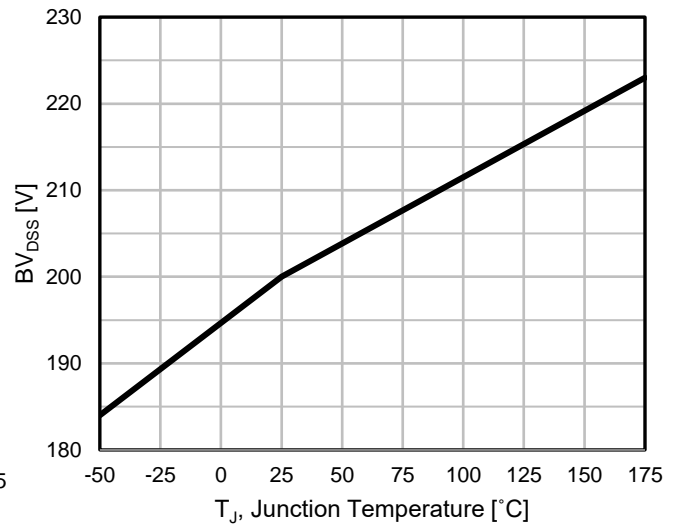
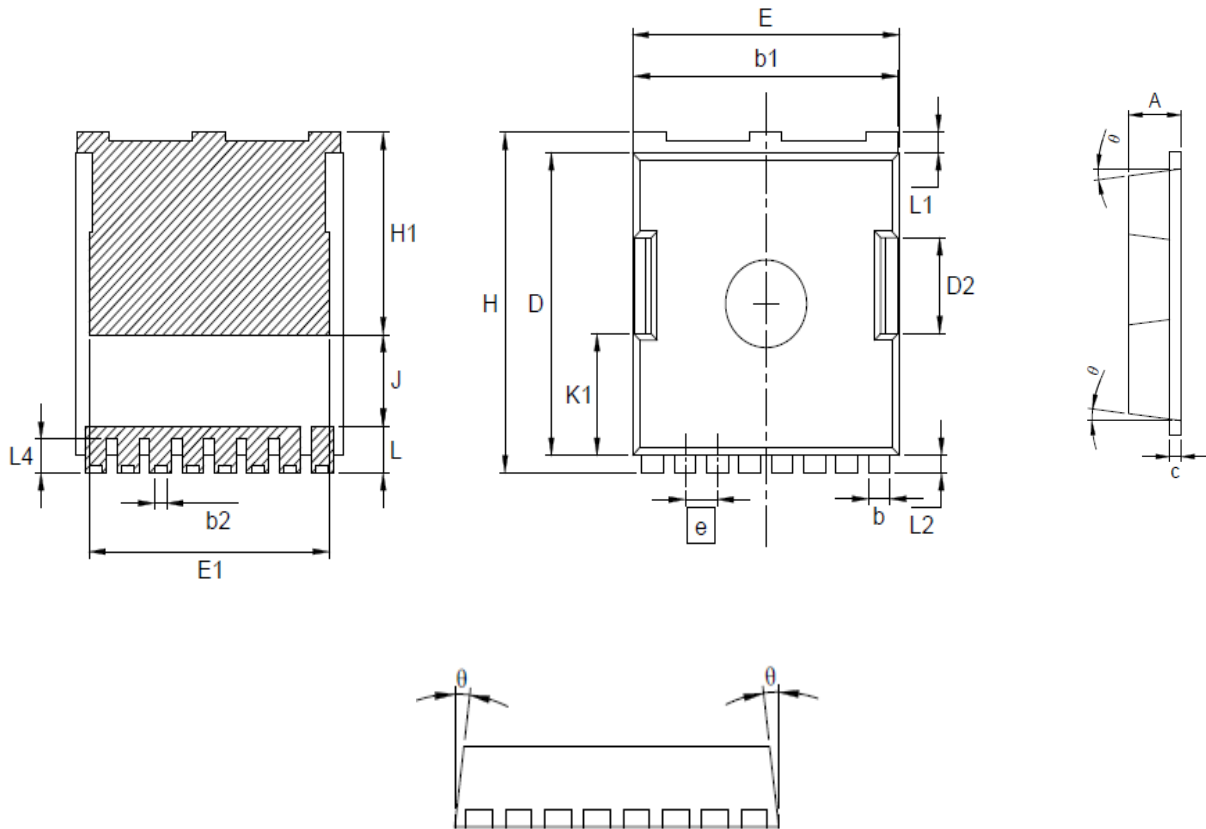


Fig.13 Drain-Source Voltage vs. Temperature

# Package Outlines

TOLL




Symbol	Dimension (mm)		
	Min	Nom	Max
A	2,20	-	2,40
b	0,70	-	0,90
b1	9,70	-	9,90
b2	0,42	-	0,50
c	0,40	-	0,60
D	10,28	-	10,58
D2	3,10	3,30	3,50
E	9,70	9,90	10,10
E1	8,70	8,90	9,10
e	BSC 1,20		
H	11,48	11,68	11,90
H1	6,75	-	7,15
J	2,80	-	3,30
K1	3,98	4,18	4,38
L	1,38	1,60	1,98
L1	0,60	0,70	0,80
L2	0,50	0,60	0,70
L4	1,00	1,15	1,30
θ	4°	7°	10°

## Notes

Package body size, length and width do not include mold flash, protrusions and gate burrs.

**DISCLAIMER :**

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