

Super-Junction Power Mosfet

1. Product Information

Features

- Low FOM $R_{DS(ON)} \times Q_G$
- Fast switching capability
- Lead free product is acquired

Applications

- Power supply
- Charger
- Solar/UPS-Micro inverter system

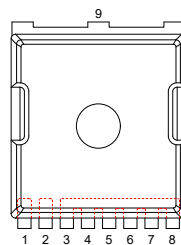
Quick reference

- $V_{DS} \geq 300\text{ V}$
- $I_D \leq 129\text{ A}$
- $R_{DS(ON)} \leq 16\text{ m}\Omega @ V_{GS} = 10\text{ V}$ (Type 13 m Ω)

Pin Description

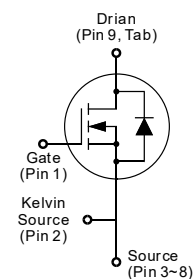
Pin	Description
1	Gate
2	Kelvin Source
3,4,5,6,7,8	Source
9	Drain

Simplified Outline



TOLL-B-8L

Symbol



Package Marking and Ordering Information

Part number	Marking	Package	Packaging	Quantity	Reel size	Tape width
KJCF30R018TB	KJCF30R018TB	TOLL-B-8L	☒ Tape & Reel	2000 PCS	13"	24 mm
			☐ Tube	N/A	N/A	N/A

2. Absolute Maximum Ratings ($T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Values	Unit
V_{DS}	Drain-Source Voltage	300	V
V_{GS}	Gate-Source Voltage	± 30	V
I_D	Continuous Drain Current ($T_C=25^\circ\text{C}$)	129	A
	Continuous Drain Current ($T_C=100^\circ\text{C}$)	91	A
I_{DM}	Pulsed Drain Current	516	A
E_{AS}	Single Pulsed Avalanche Energy ($L=0.3\text{ mH}$)	227	mJ
P_D	Power Dissipation	600	W
T_J, T_{stg}	Operating Junction and Storage Temperature Range	-55 to 150	$^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-Ambient	46	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance, Junction-Case	0.25	$^\circ\text{C/W}$

3. Electrical Characteristics (T_J=25°C, unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Type	Max	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0 V, I _D =250 μA	300	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =300 V, V _{GS} =0 V	-	-	5	μA
		V _{DS} =300 V, T _C =150 °C	-	1000	-	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±30 V, V _{DS} =0 V	-	-	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250 μA	3.0	-	4.5	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =10 V, I _D =36 A	-	13	16	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =150 V, V _{GS} =0 V, f=1 MHz	-	7345	-	pF
C _{oss}	Output Capacitance		-	640	-	pF
C _{rss}	Reverse Transfer Capacitance		-	87	-	pF
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DS} =150 V, I _D =36 A, R _G =27 Ω, V _{GS} =10 V	-	38	-	ns
t _r	Turn-on Rise Time		-	25	-	ns
t _{d(off)}	Turn-off Delay Time		-	132	-	ns
t _f	Turn-off Fall Time		-	26	-	ns
Q _g	Total Gate Charge	V _{DS} =150 V, I _D =36 A, V _{GS} =10 V	-	186	-	nC
Q _{gs}	Gate-Source Charge		-	48	-	nC
Q _{gd}	Gate-Drain Charge		-	69	-	nC
Source-Drain Diode Characteristics						
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} =0 V, I _F =36 A	-	-	1.3	V
Q _{rr}	Reverse Recovery Time	V _R =150 V, I _F =36 A, di/dt=100 A/μs	-	1.8	-	μC
T _{rr}	Reverse Recovery Charge		-	210	-	ns

4. Electrical Characteristics

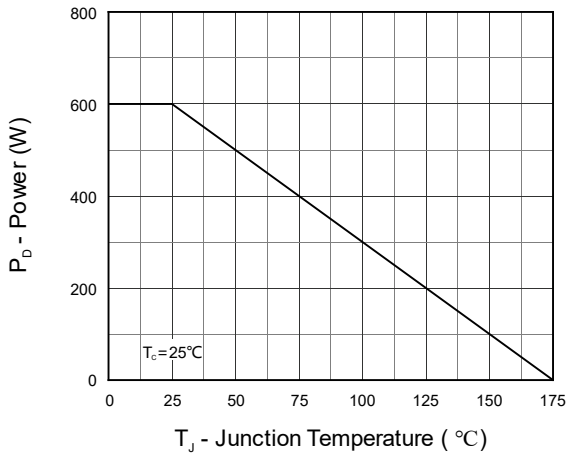


Figure 1. Power Capability

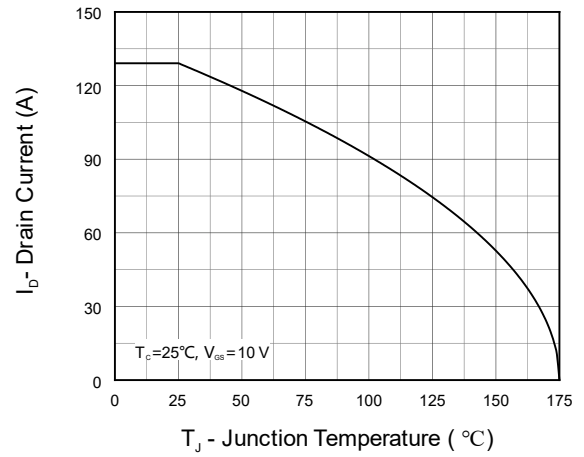


Figure 2. Current Capability

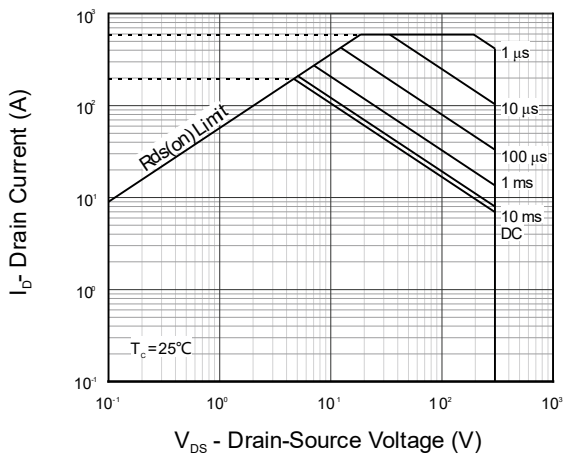


Figure 3. Safe Operation Area

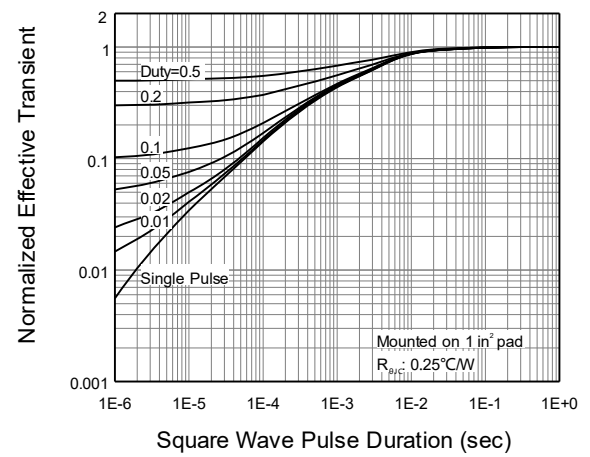


Figure 4. Transient Thermal Impedance

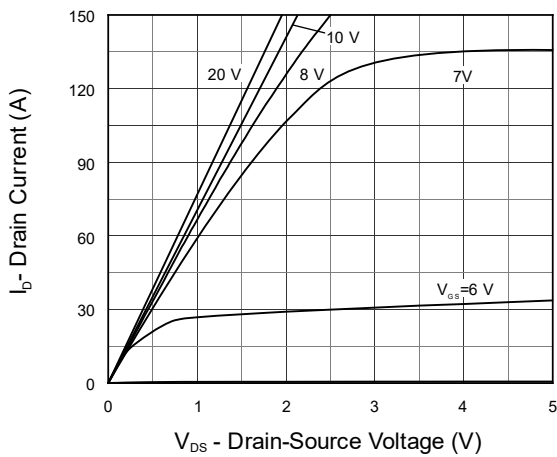


Figure 5. Output Characteristics

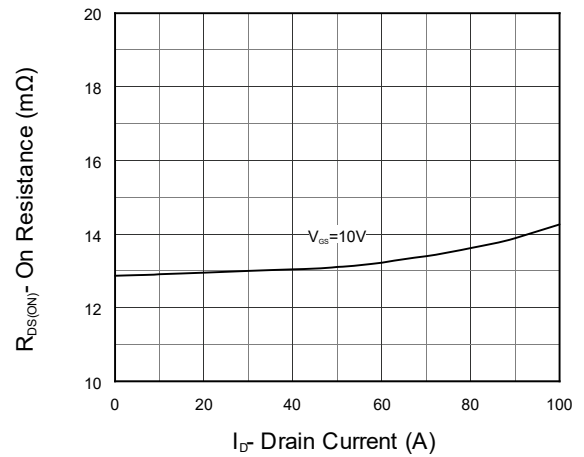


Figure 6. On Resistance

5. Electrical Characteristics (cont.)

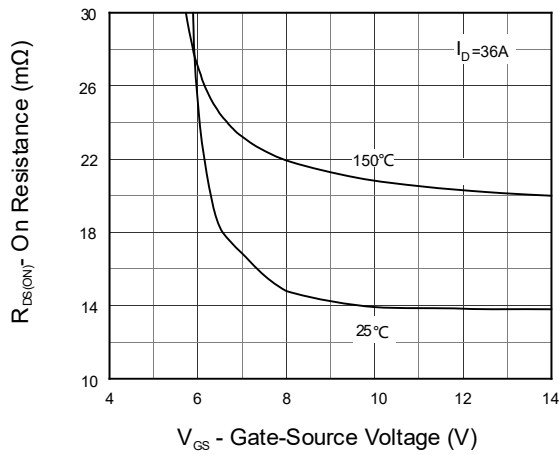


Figure 7. Transfer Characteristics

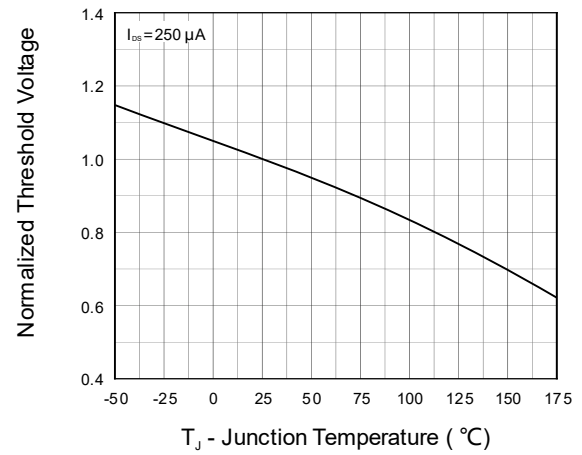


Fig 8. Normalized Threshold Voltage

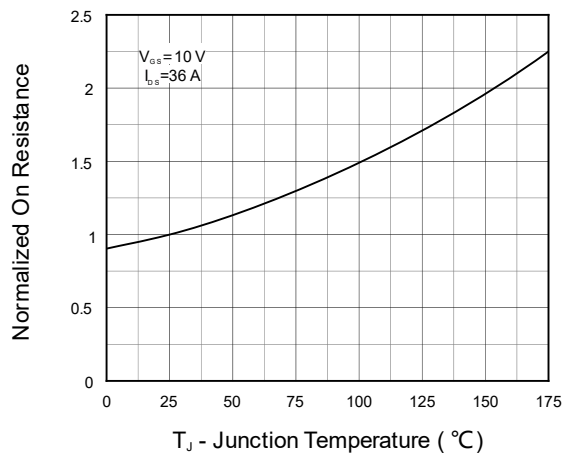


Fig 9. Normalized On Resistance

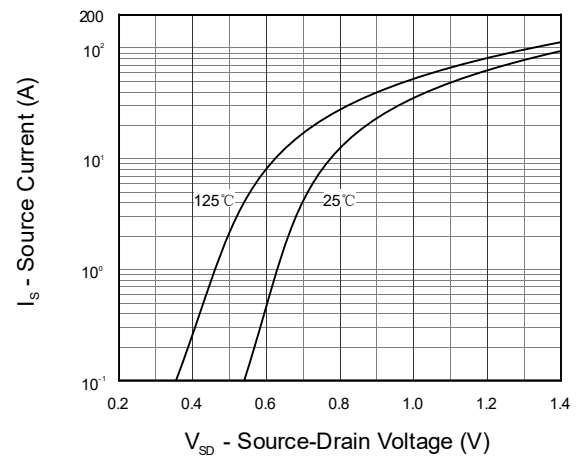


Figure 10. Diode Forward Current

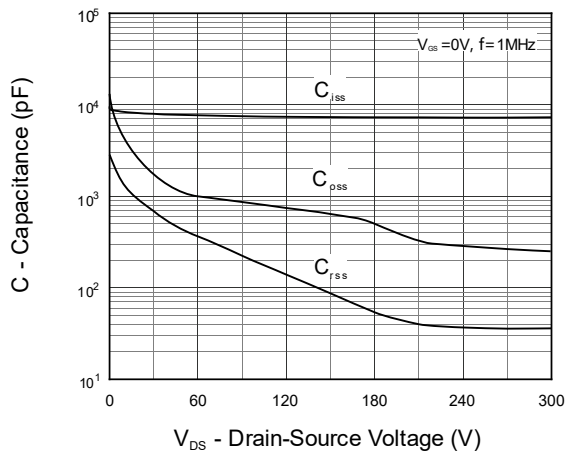


Figure 11. Capacitance

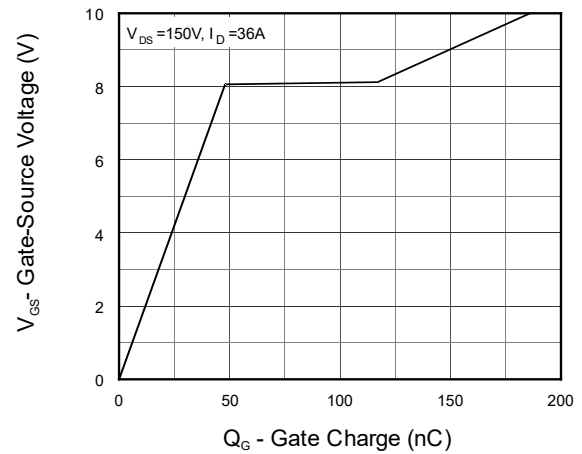
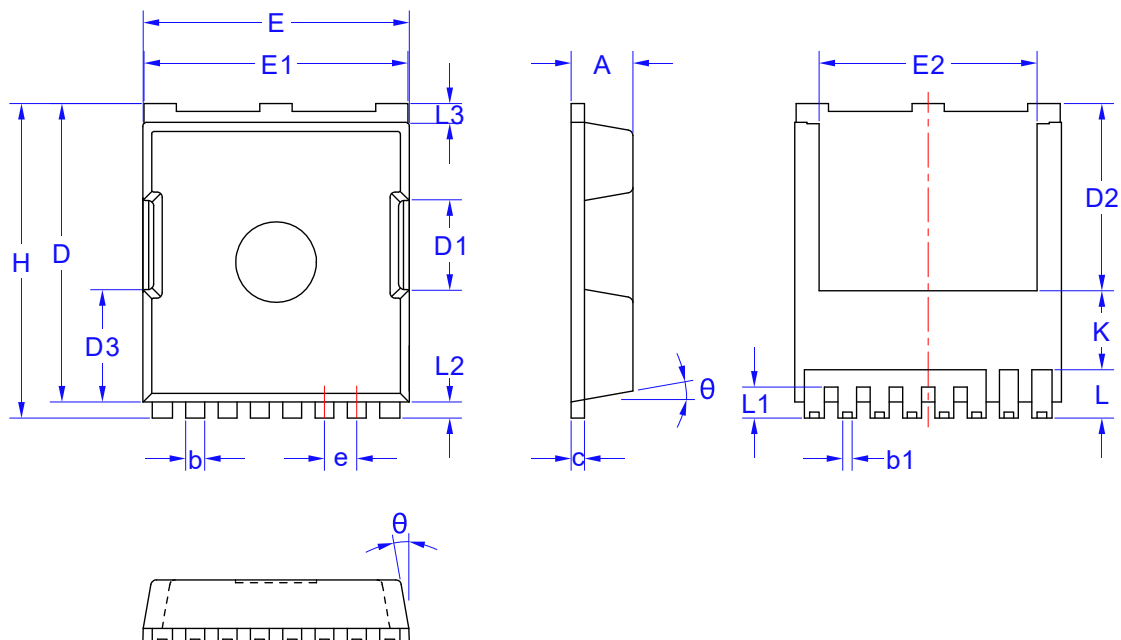


Figure 12. Gate Charge

5. Package Mechanical Data

TOLL-B-8L package



Symbol	Dimensions in Millimeters		
	MIN.	NOM.	MAX.
A	2.20	2.30	2.40
b	0.65	0.75	0.85
c		0.508 REF	
D	10.25	10.40	10.55
D1	2.85	3.00	3.15
D2	2.95	3.10	3.25
D3		0.75 REF	
E	9.75	9.90	10.05
E1	9.65	9.80	9.95
E2	8.95	9.10	9.25
E3	7.25	7.40	7.55
e		1.20 BSC	

Symbol	Dimensions in Millimeters		
	MIN.	NOM.	MAX.
F	1.05	1.20	1.35
H	11.55	11.70	11.85
H1	6.03	6.18	6.33
H2	6.85	7.00	7.15
H3		3.00 BSC	
K	4.25	4.40	4.55
L	1.55	1.70	1.85
L1	0.55	0.70	0.85
L2	0.45	0.60	0.75
L3	1.00	1.15	1.30
M		0.08 REF	
θ	8°	10°	12°