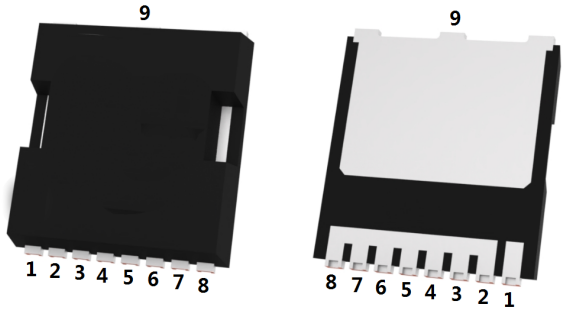
M023N10T

100V/280A N-Channel MOSFET

Product Summary

V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
100V	2.3mΩ@10V	280A

TOLL-8L



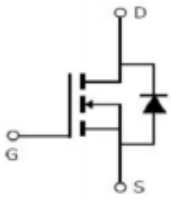
G:PIN1 S:PIN2/3/4/5/6/7/8 D:PIN9

Features

- N-channel, normal level
- Very low on-resistance RDS(on)

Application

- Industrial power supplies
- Boost converters
- Rectifier
- Telecom
- Battery management system



Schematic diagram

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)
M023N10T	TOLL-8L	023N10SH	

Absolute Maximum Ratings

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Drain Current - Continuous		I_D	280	A
Drain Current - Continuous		I_D(T_c=100℃)	190	A
Drain Current – Pulsed		I_{DM}	1200	A
Gate-Source Voltage		V_{GS}	±20	V
Power Dissipation		P_{tot}	286	W
Continuous-Source Current		I_S	280	A
Single Pulse Avalanche Energy(V_{DD}=50V,L=1mH)		E_{AS}	1750	mJ
Junction and Storage Temperature Range		T_j, T_{stg}	-55 to 150	℃
Thermal resistance, junction - ambient	Steady-State	$R_{\theta JA}$	32.8	℃/ W
Thermal resistance, junction - case	Steady-State	$R_{\theta JC}$	0.45	

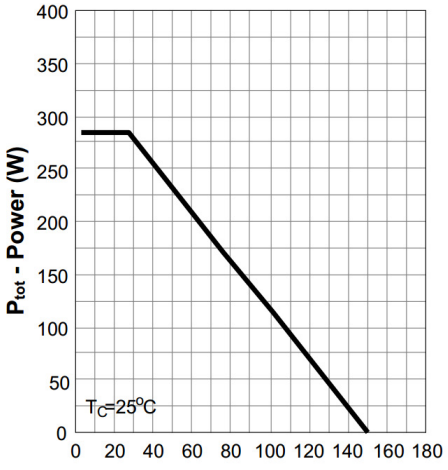
100V/280A N-Channel MOSFET

Electrical Characteristics(Ta=25℃)

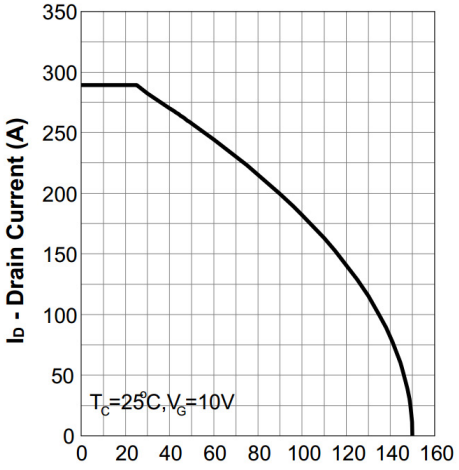
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	I_D=250uA, V_{GS}=0V	100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=80V, V_{GS}=0V			1	uA
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}= ±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	2.0		4.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A		2.1	2.3	mΩ
Diode Forward Voltage	V_{SD}	I_S=20A, V_{GS}=0V			1.3	V
Input Capacitance	C_{iss}	V_{DS}=50V V_{GS}=0V f=1.0MHz		9200		pF
Output Capacitance	C_{oss}			1130		
Reverse Transfer Capacitance	C_{rss}			110		
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=50V I_{DS}=20A		131		nC
Gate Source Charge	Q_{gs}			50		
Gate Drain Charge	Q_{gd}			24.5		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V V_{DS}=50V R_L=2.5Ω R_G=4.5Ω I_{DS}=20A		32		ns
Turn-On Rise Time	t_r			40		
Turn-Off Delay Time	$t_{d(off)}$			80		
Turn-Off Fall Time	t_f			35		
Reverse Recovery Time	t_{rr}	I_{DS} = 20 A, V_{GS} = 0 V dI_{SD}/dt = 100 A/μs		80		nS
Reverse Recovery Charge	Q_{rr}			195		nC

100V/280A N-Channel MOSFET

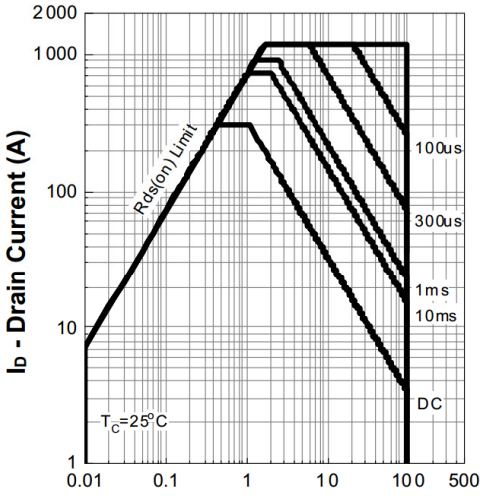
Electrical Characteristic Curve



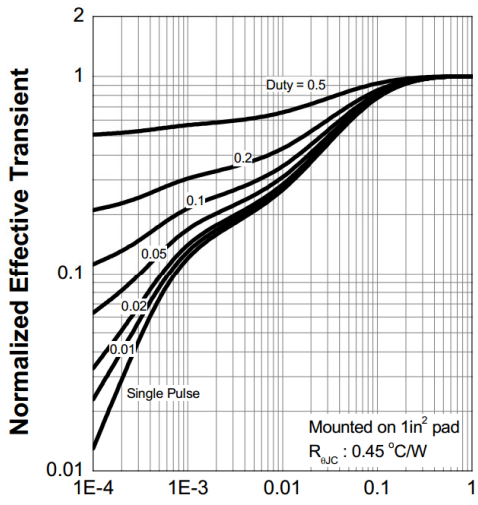
1. Power Capability



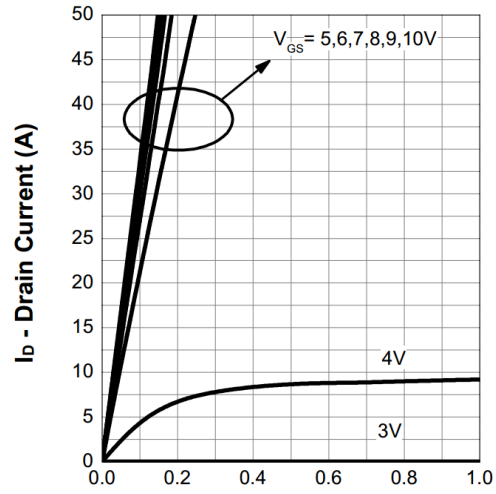
2. Current Capability



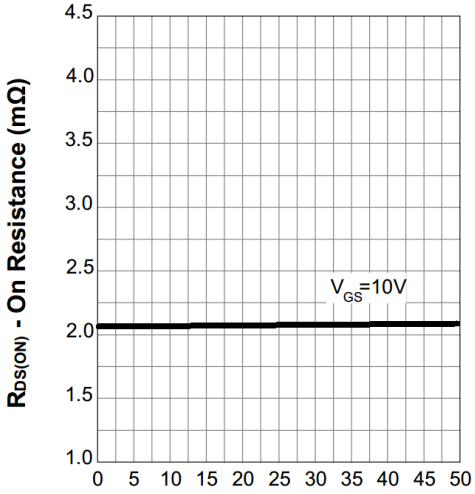
3. Safe Operating Area



4. Transient Thermal Impedance



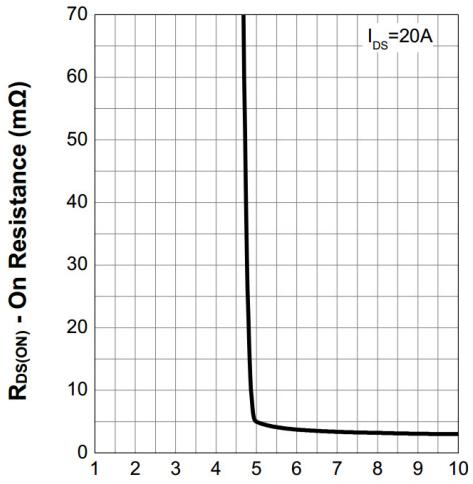
5. Output Characteristics



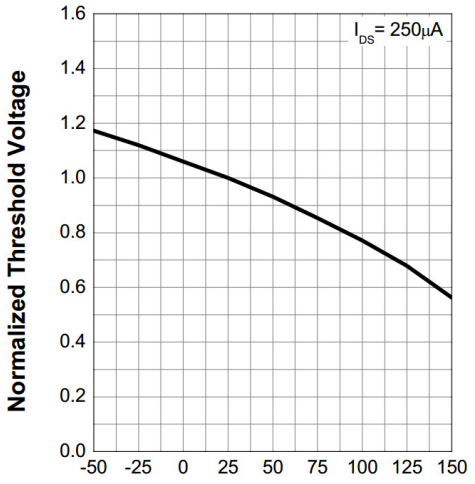
6. On Resistance

100V/280A N-Channel MOSFET

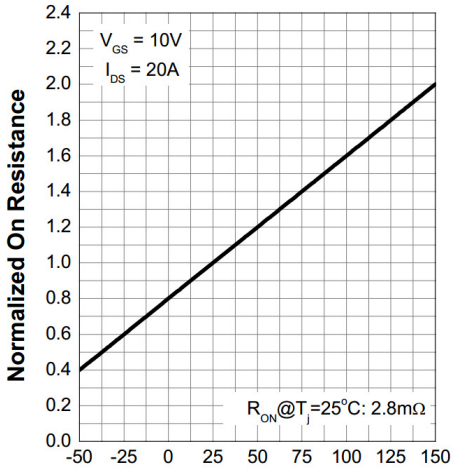
Electrical Characteristic Curve



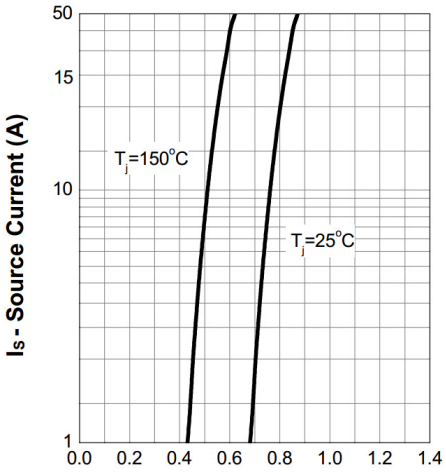
7. Transfer Characteristics



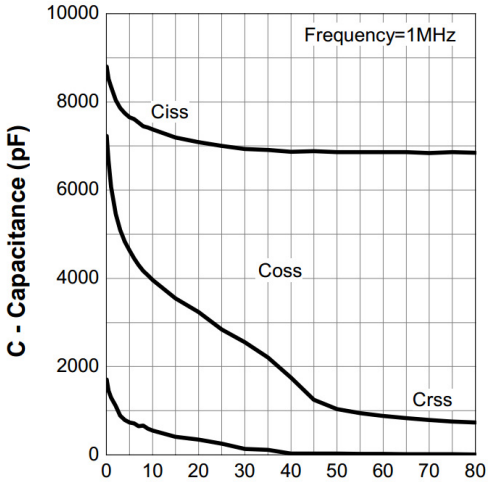
8. Normalized Threshold Voltage



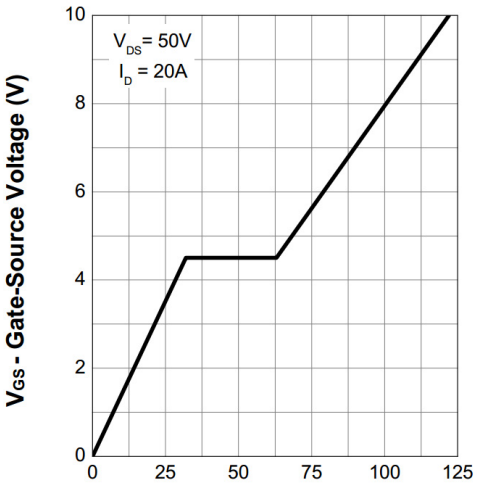
9. Normalized On Resistance



10. Diode Forward Current

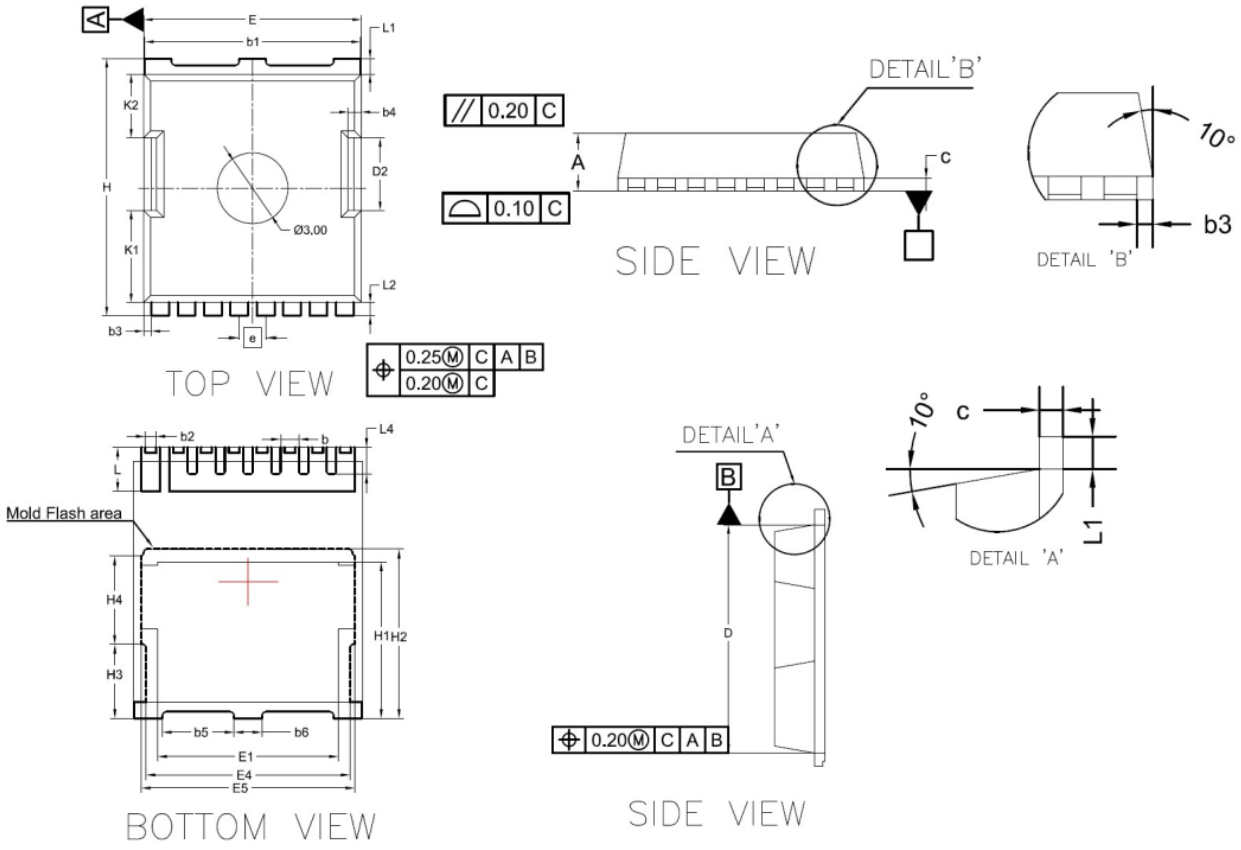


11. Capacitance



12. Gate Charge

Package Dimensions



Symbol	Dimensions In Millimeters			Symbol	Dimensions In Millimeters		
	MIN.	NOM.	MAX.		MIN.	NOM.	MAX.
A	2.200	2.300	2.400	b1	9.700	9.800	9.900
c	0.492	0.500	0.508	b1	0.420	0.460	0.500
D	10.280	10.380	10.480	b3		0.350	
E	9.800	9.900	10.000	b4		0.600	
e		1.20 BSC		b5		3.100	
H	11.580	11.680	11.780	b6		1.200	
H1	6.650	6.750	6.850	L	1.700	1.900	2.100
H2		7.300		L1		0.700	
H3		3.200		L2		0.600	
H4		3.800		L4	1.050	1.150	1.250
K1		4.180		L5	0.500	0.600	0.700
K2		2.900		E1		7.800	
D2		3.300		E4		8.800	
b	0.700	0.800	0.900	E5		9.200	