Features

- Split Gate Trench Mosfet Technology
- Excellent Package for Heat Dissipation
- Moisture Sensitivity Level 1
- High Density Cell Design for Low $R_{DS(on)}$
- Halogen Free."Green" Device(Note1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

N-CHANNEL MOSFET

Maximum Ratings

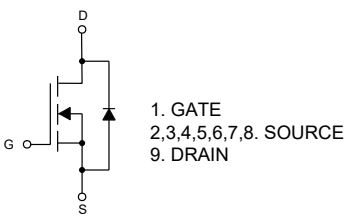
- Operating Junction Temperature Range : -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Thermal Resistance: 40°C/W Junction to Ambient (Note2)
- Thermal Resistance: 0.32°C/W Junction to Case

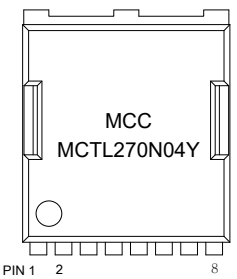
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Volltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	270	A
	T_C=100°C		190	
Pulsed Drain Current (Note3)		I_{DM}	1080	A
Total Power Dissipation(Note4)		P_D	468	W
Single Pulsed Avalanche Energy(Note5)		E_{AS}	1521	mJ

Note:

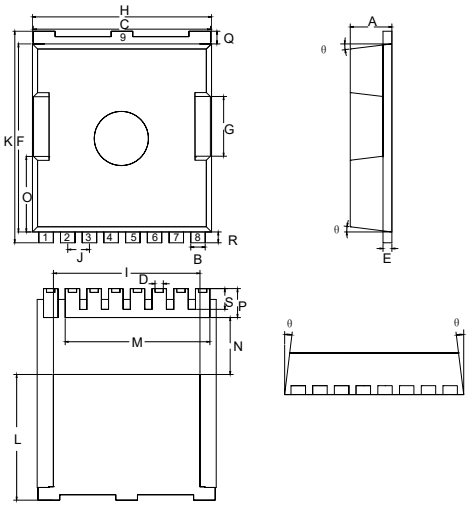
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C. The Power dissipation P_{DSM} is based on $R_{\theta JA}$ t≤ 10s and the maximum allowed junction temperature of 175°C. The value in any given application depends on the user's specific board design.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-case thermal resistance.
5. T_J=25°C, V_{DD}=50V, V_{GS}=10V, L=2mH

Internal Structure and Marking Code





TOLL-8L



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.087	0.094	2.20	2.40	
B	0.028	0.035	0.70	0.90	
C	0.382	0.390	9.70	9.90	
D	0.017	0.020	0.42	0.50	
E	0.016	0.024	0.40	0.60	
F	0.405	0.417	10.28	10.58	
G	0.122	0.138	3.10	3.50	
H	0.382	0.398	9.70	10.10	
I	0.311	0.327	7.90	8.30	
J	0.047		1.20		BSC
K	0.452	0.468	11.48	11.88	
L	0.266	0.281	6.75	7.15	
M	0.315		8.00		
N	0.118	0.130	3.00	3.30	
O	0.157	0.172	3.98	4.38	
P	0.055	0.071	1.40	1.80	
Q	0.024	0.031	0.60	0.80	
R	0.020	0.028	0.50	0.70	
S	0.039	0.051	1.00	1.30	
θ	4°	10°	4°	10°	

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_D=250μA	40			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V,V_{GS}=±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=32V,V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	2	3	4	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=30A		1	1.3	mΩ
		V_{GS}=6V,I_D=20A		2	2.8	
Gate Resistance	R_g	f=1 MHz,Open drain		1.2		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				270	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=50A			1.25	V
Reverse Recovery Time	t_{rr}	I_F=50A, dI_F/dt=100A/μs		70		ns
Reverse Recovery Charge	Q_{rr}			96		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V,f=1MHz		8010		pF
Output Capacitance	C_{oss}			2479		
Reverse Transfer Capacitance	C_{rss}			257		
Total Gate Charge	Q_g	V_{DS}=20V,V_{GS}=10V,I_D=50A		135.6		nC
Gate-Source Charge	Q_{gs}			38.7		
Gate-Drain Charge	Q_{gd}			43.5		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=20V, V_{GS}=10V, R_{GEN}=6Ω, I_{DS}=50A		40.5		ns
Turn-On Rise Time	t_r			138.4		
Turn-Off Delay Time	$t_{d(off)}$			75.9		
Turn-Off Fall Time	t_f			81.7		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

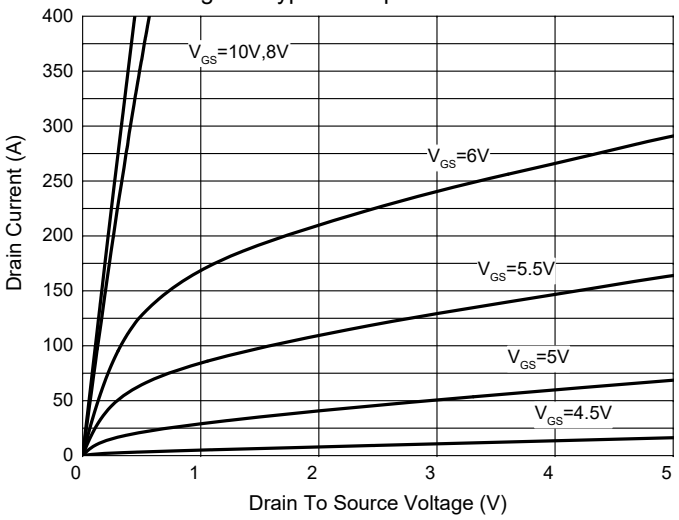


Fig. 2 - Transfer Characteristics

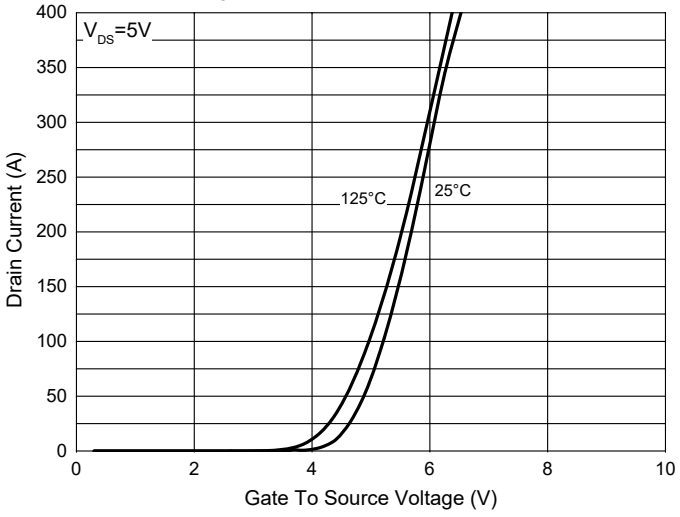


Fig. 3 - $R_{DS(ON)}$—V_{GS}

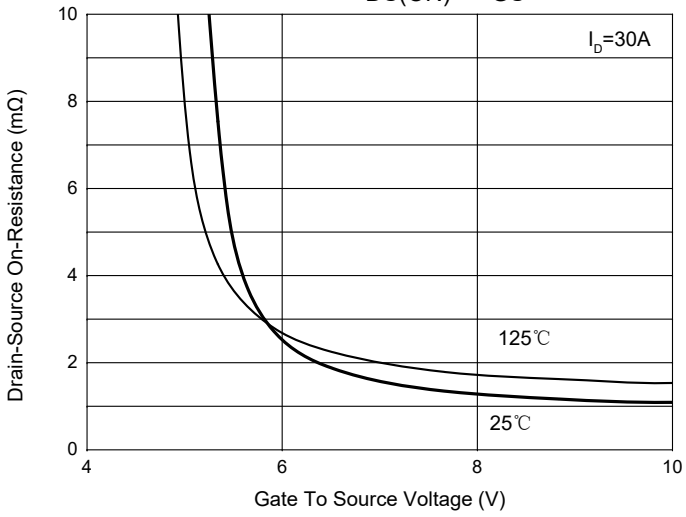


Fig. 4 - $R_{DS(ON)}$—I_D

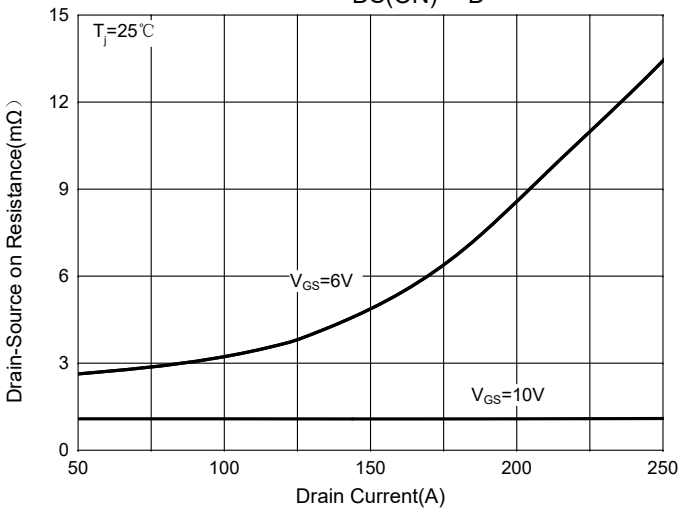


Fig. 5 - Capacitance Characteristics

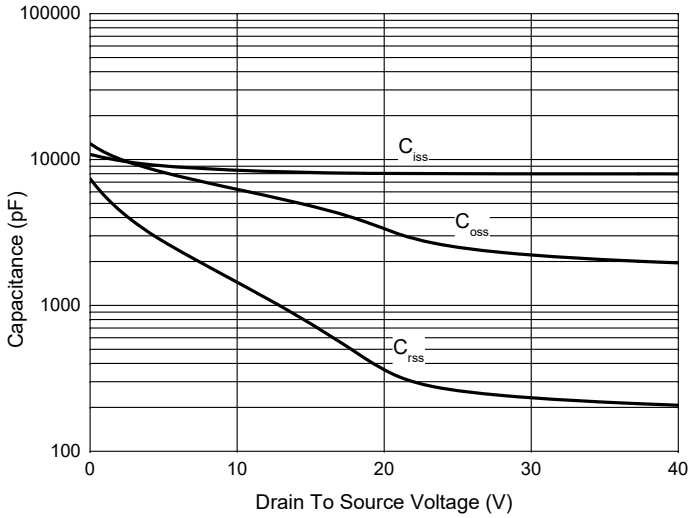
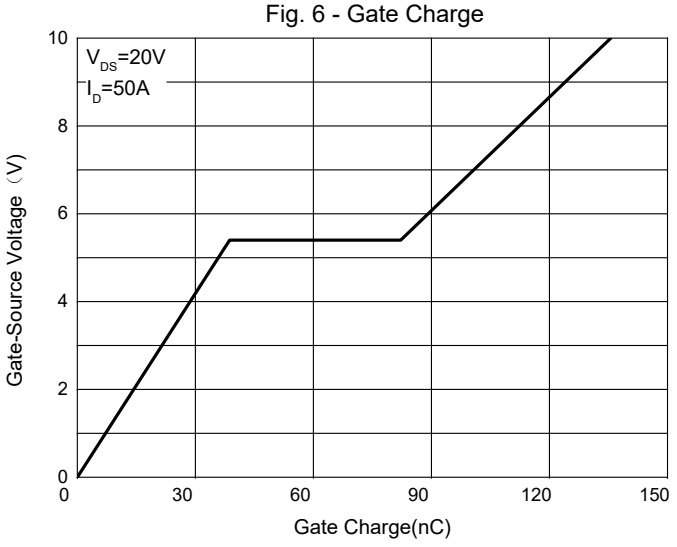


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Nomalized Threshold voltage

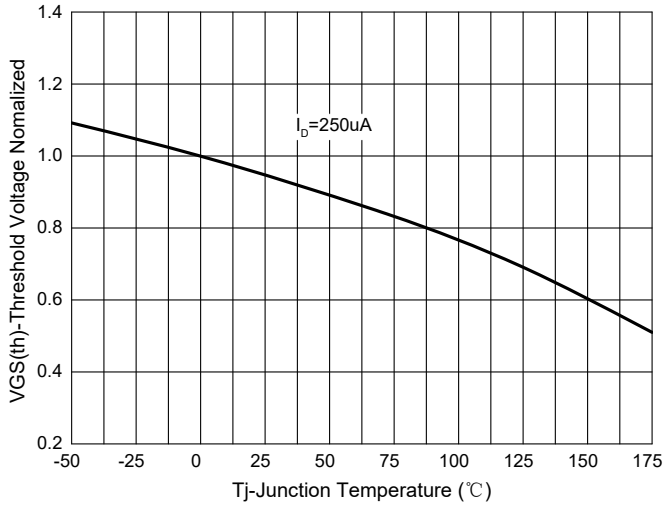


Fig.8-Normalized On Resistance Characteristics

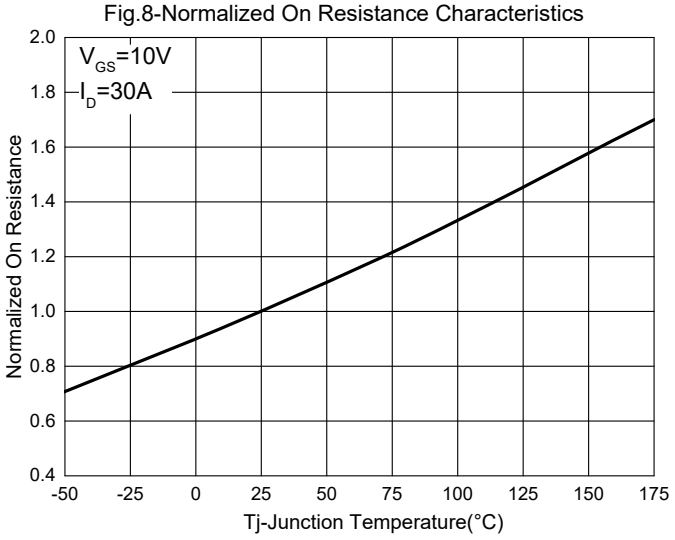


Fig.9 - I_S—V_{SD}

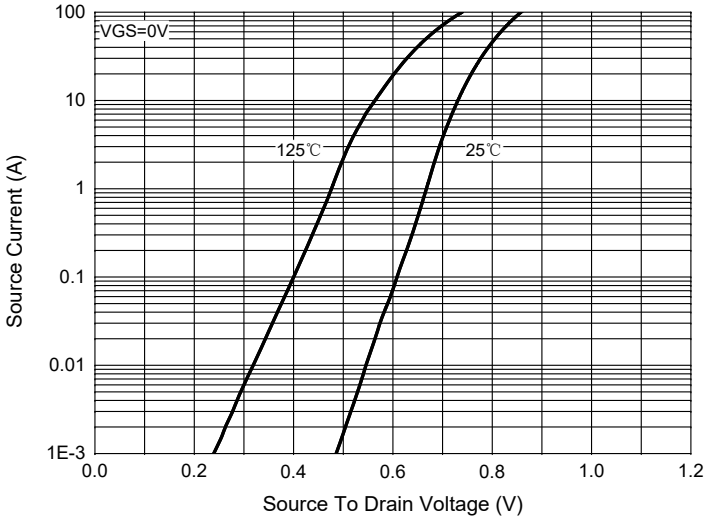


Fig. 10 - Current dissipation

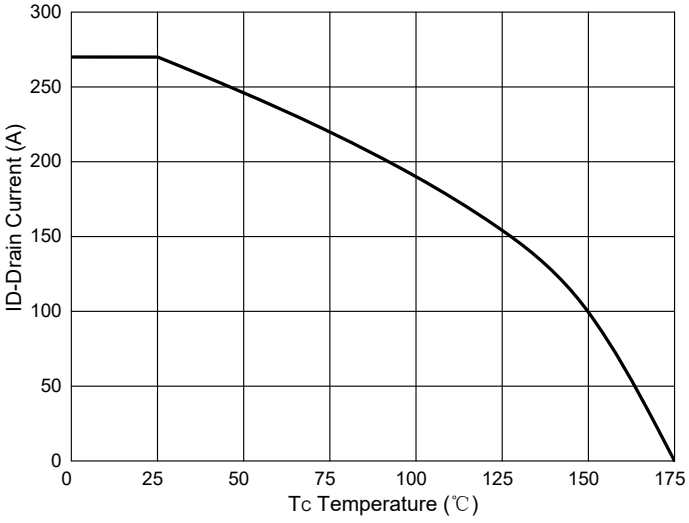
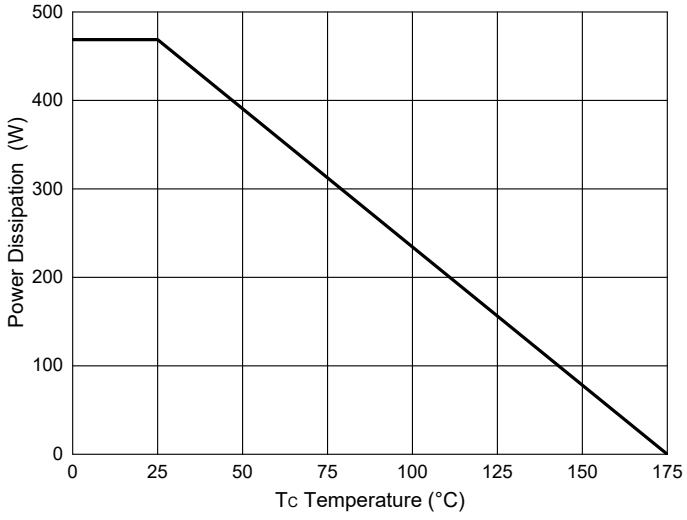


Fig.11-PD-TJ



Curve Characteristics

Fig. 12 - Safe Operation Area

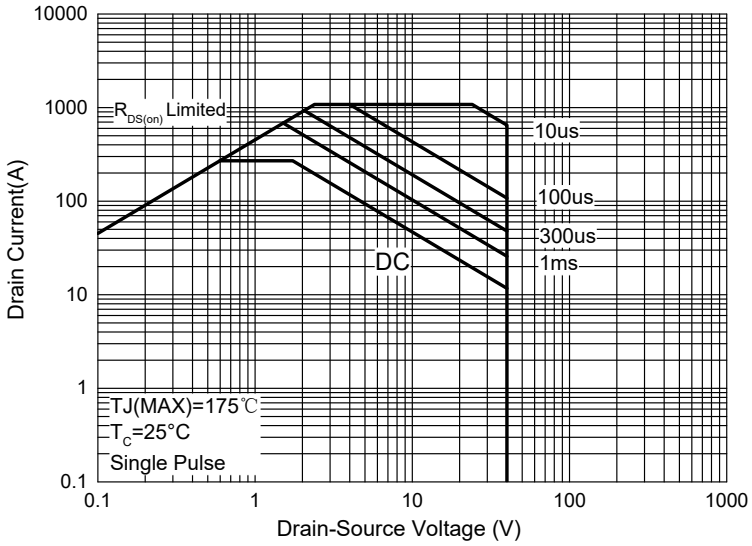
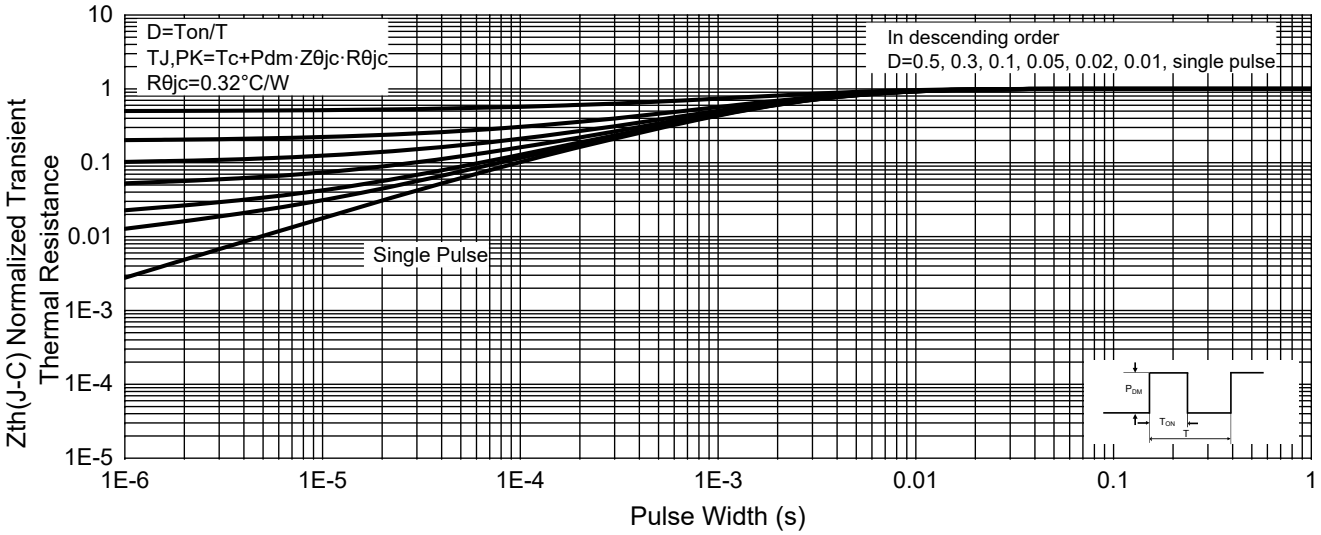


Fig. 13 -Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 2Kpcs/Reel

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