

PRODUCT CHARACTERISTICS

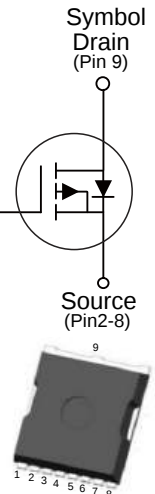
V_{DS}	-60V
$R_{DS(ON)}$ Typ (@ $V_{GS}=-10V$)	7m Ω
$R_{DS(ON)}$ Typ (@ $V_{GS}=-4.5V$)	9m Ω
I_D	-120A

APPLICATIONS

- BMS management
- Motor control and driver
- Power Management

FEATURES

- Uses MOT advanced double trench technology
- Low On-Resistance ($R_{DS(on)} \leq 8.5m\Omega$)
- Low Gate Charge
- Low Reverse transfer capacitance
- 100% avalanche tested



TOLL

ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
MOT6375T	N/A	TOLL	2000 pieces /Reel

ABSOLUTE MAXIMUM RATINGS ($T_A=25^{\circ}C$, unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-60	V
Gate -Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous(@ $V_{GS}=10V, T_A=25^{\circ}C$)	I_D	-120	A
Drain Current-Continuous(@ $V_{GS}=10V, T_A=100^{\circ}C$)	I_D	-80	A
Drain Current Pulsed	I_{DM}	-480	A
Single Pulsed Avalanche Energy*	E_{AS}	784	mJ
Power Dissipation	P_D	220	W
Junction Temperature	T_J	+150	$^{\circ}C$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^{\circ}C$

THERMAL CHARACTERISTICS

Parameter	Symbol	Typ	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.56	$^{\circ}C/W$

Note: * EAS condition: $T_J=25^{\circ}C, V_{DD}=-30V, V_G=-10V, L=0.5mH, R_g=25\Omega$

■ ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain to Source Breakdown Voltage	V _{DSS}	V _{GS} =0V,I _D =-250μA	-60	-	-	V
Drain to Source Leakage Current	I _{DSS}	V _{DS} =-60V,V _{GS} =0V	-	-	-1	μA
Gate to Source Forward Leakage	I _{GSS(F)}	V _{GS} =+20V,V _{DS} =0V	-	-	100	nA
Gate to Source Reverse Leakage	I _{GSS(R)}	V _{GS} =-20V ,V _{DS} =0V	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V,I _D =-20 A	-	7	8.5	mΩ
		V _{GS} =-4.5V,I _D =-20 A	-	9	11	mΩ
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} ,I _D =-250μA	-1	-1.77	-2.5	V
Dynamic characteristics						
Gate capacitance	R _g	V _{GS} =0V,V _{DS} =0V ,f=1.0MHz	-	3	-	Ω
Forward Transconductance	g _{fs}	V _{DS} =-10V,I _D =-5A	-	25	-	S
Input Capacitance	C _{iss}	V _{DS} =-20V,V _{GS} =0V f=1.0MHz	-	11000	-	pF
Output Capacitance	C _{oss}		-	460	-	pF
Reverse Transfer Capacitance	C _{rss}		-	329	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	V _{GS} =-10V,V _{DS} =-30V, I _D =-20 A,R _G =1.6Ω	-	15	-	ns
Rise Time	t _r		-	18	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	50	-	ns
Fall Time	t _f		-	18	-	ns
Total Gate Charge	Q _g	I _D =-20 A, V _{DS} =-30V V _{GS} =-10V	-	61	-	nC
Gate to Source Charge	Q _{gs}		-	12	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	8	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _s		-	-	-120	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	-480	A
Diode Forward Voltage	V _{SD}	I _{SD} =-1A, V _{GS} =0V	-	-0.70	-1.2	V
Reverse Recovery Time	t _{rr}	I _{SD} =-20 A, T _J =25 °C dI/dt=100A/μs	-	55	-	ns
Reverse Recovery Charge	Q _{rr}		-	101	-	nC

■ TYPICAL CHARACTERISTICS

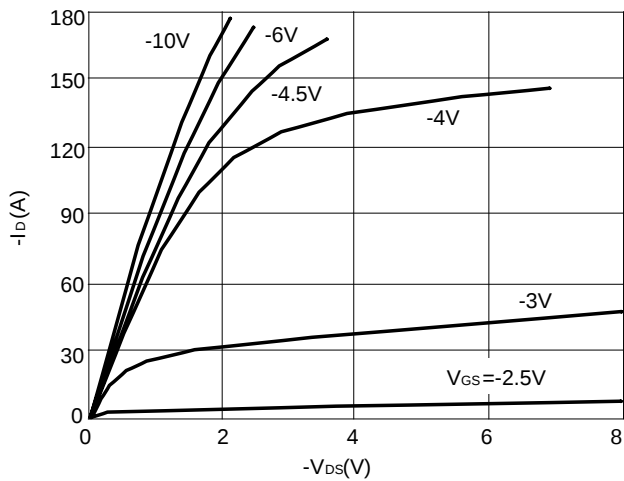


Figure 1: Output Characteristics

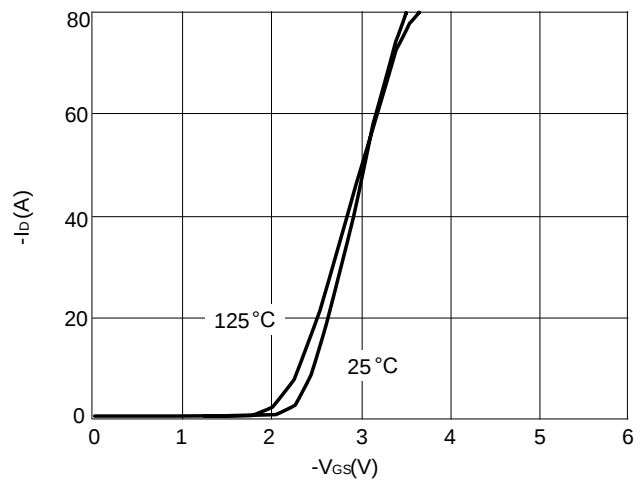


Figure 2: Transfer Characteristics

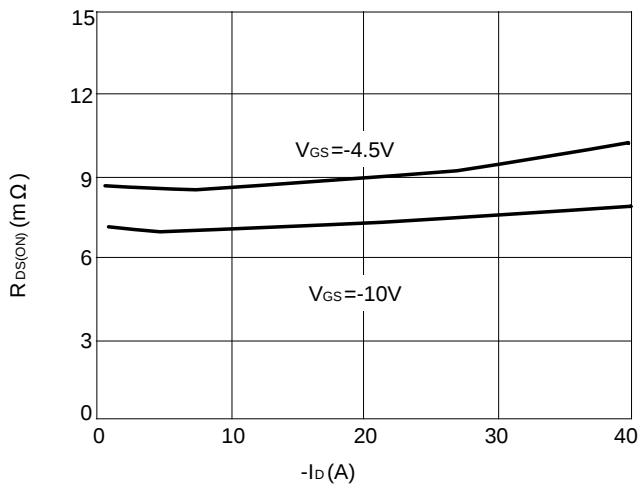


Figure 3: $R_{DS(ON)}$ vs. Drain Current

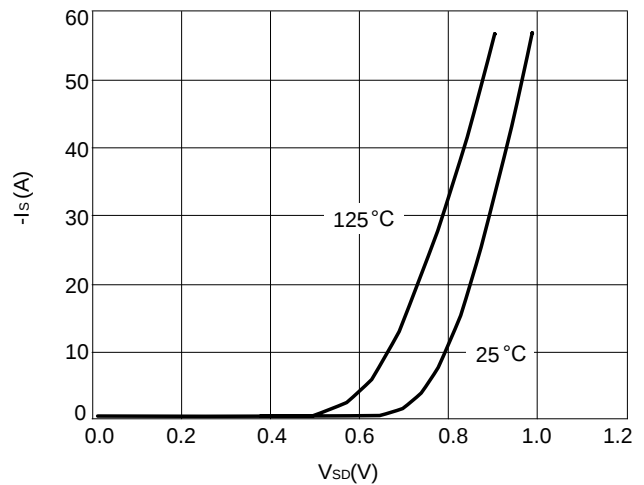


Figure 4: Body Diode Characteristics

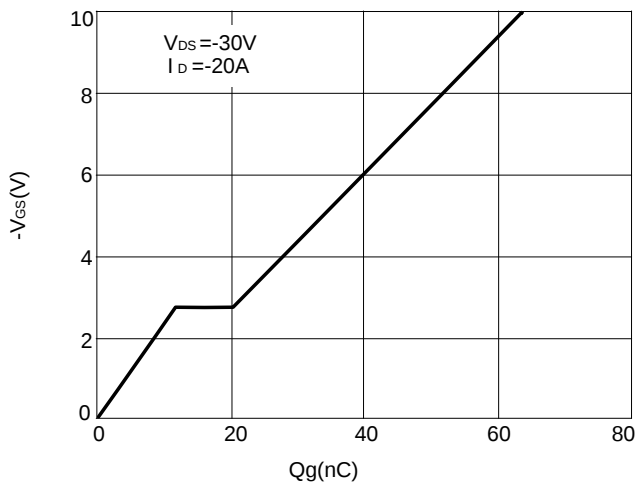


Figure 5: Gate Charge Characteristics

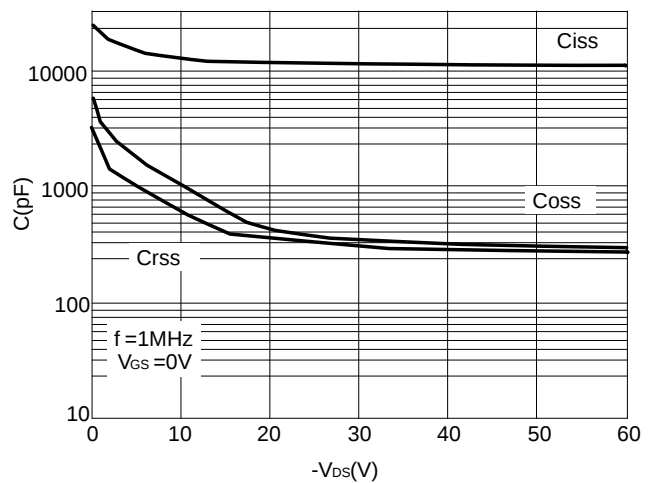


Figure 6: Capacitance Characteristics

■ TYPICAL CHARACTERISTICS(Cont.)

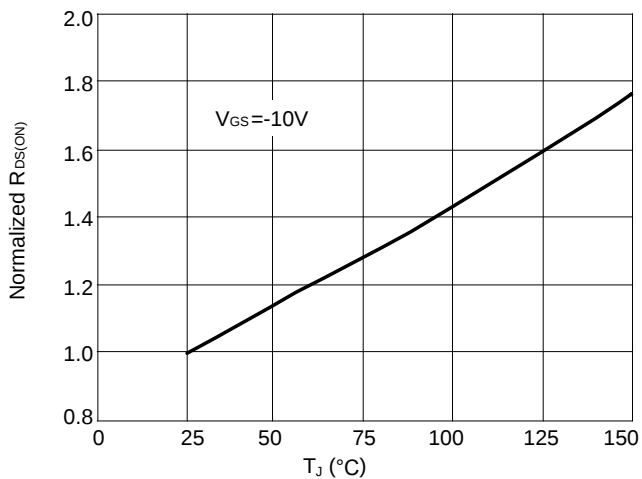


Figure 7: Normalized On-resistance vs. Junction Temperature

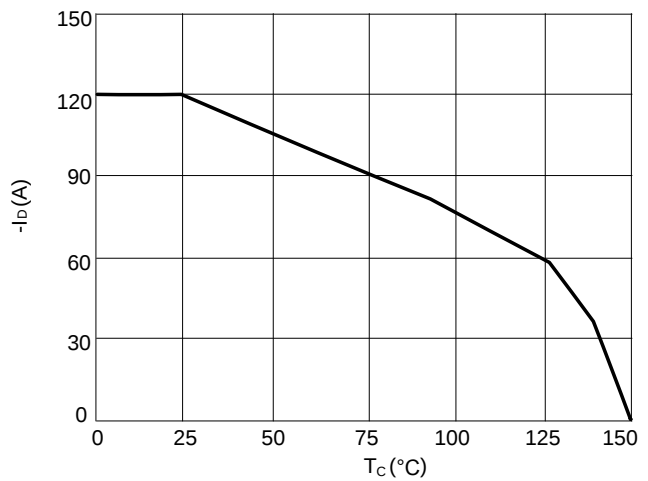


Figure 8: Current De-rating

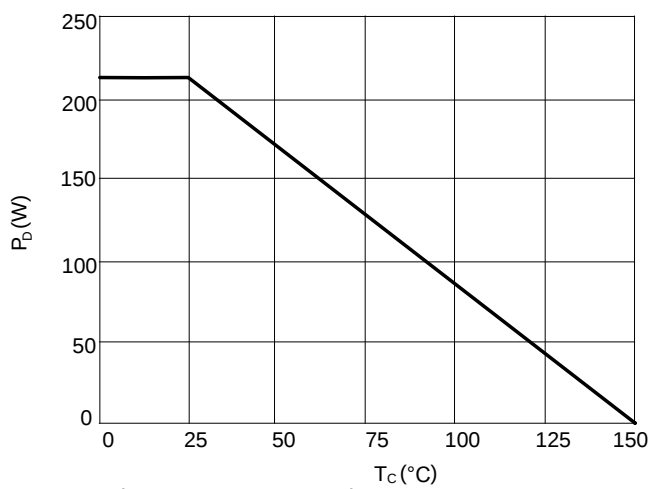


Figure 9: Power De-rating

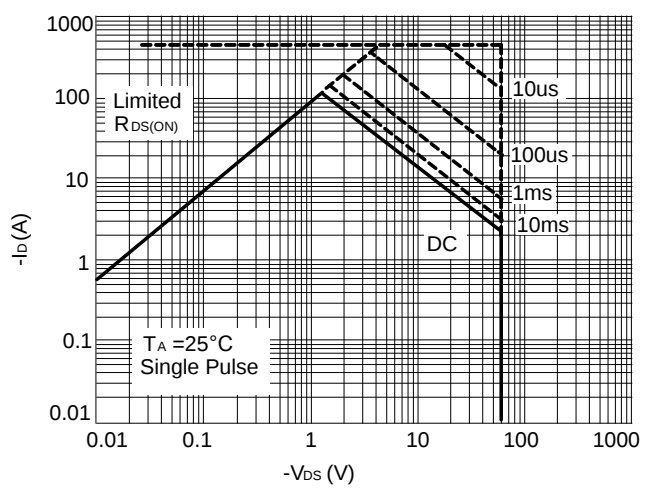
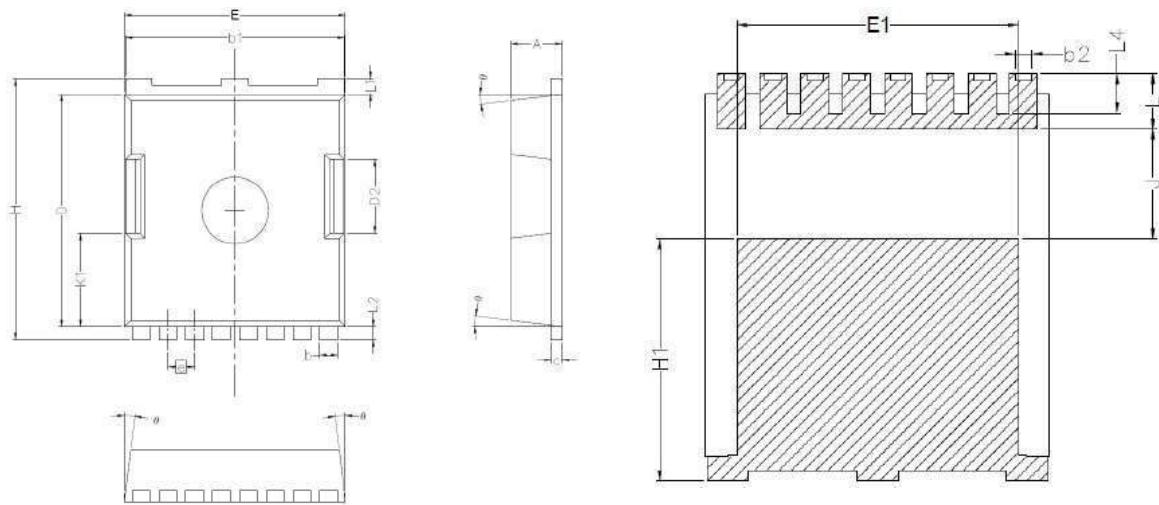


Figure 10: Safe Operating Area

■ TOLL-8L PACKAGE OUTLINE DIMENSIONS



Symbol	Dimesions In Millimeters	
	Min.	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	3.50
E	9.70	10.10
E1	7.90	8.30
e	1.20BSC	
H	11.48	11.88
H1	6.75	7.15
N	8	
J	3.00	3.30
K1	3.98	4.38
L	1.40	1.80
L1	0.60	0.80
L2	0.50	0.70
L4	1.00	1.30
θ	4°	10°