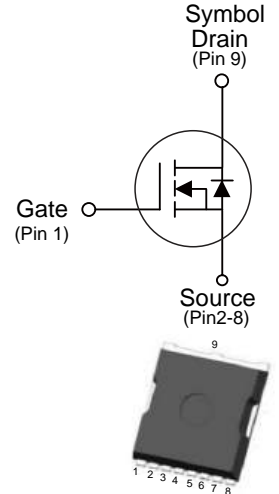


■ PRODUCT CHARACTERISTICS

V _{DSS}	145V
R _{DS(ON)} Typ(@V _{GS} =10V)	2.6mΩ
Qg@typ	125nC
I _D	263A



■ APPLICATIONS

- * Battery Management
- * Motor Control and Drive
- * Switching Applications

■ FEATURE

- * Low Gate Charge
- * Low Reverse Transfer Capacitance
- * 100% Avalanche Tested



TOLL

■ ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT7130T	TOLL	2000 pieces/Reel

■ ABSOLUTE MAXIMUM RATINGS(T_A=25°C, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V _{DSS}	145	V
Gate-Source Voltage	V _{GSS}	±20	V
Drain Current Continuous(@V _{GS} =10V, T _A =25°C)	I _D	263	A
Drain Current Continuous(@V _{GS} =10V, T _A =100°C)	I _D	166	A
Drain Current Pulsed	I _{DM}	1052	A
Avalanche Energy *	E _{AS}	2842	mJ
Power Dissipation	P _D	446	W
Junction Temperature	T _J	+150	°C
Storage Temperature	T _{STG}	-55~ +150	°C

■ THERMAL CHARACTERISTICS

Parameter	Symbol	Typ	Unit
Junction to Ambient	R _{thJA}	42	°C/W
Junction to Case	R _{thJC}	0.28	°C/W

Note: * EAS condition: T_J=25°C, V_{DD}=50V, V_G=10V, L=0.5mH, R_g=25Ω

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain to Source Breakdown Voltage	V_{DSS}	$V_{GS}=0V, I_D=250\mu A$	145	-	-	V
Drain to Source Leakage Current	I_{DSS}	$V_{DS}=145V, V_{GS}=0V$	-	-	1	μA
Gate to Source Forward Leakage	$I_{GSS(F)}$	$V_{DS}=0V, V_{GS}=+20V$	-	-	100	nA
Gate to Source Reverse Leakage	$I_{GSS(R)}$	$V_{DS}=0V, V_{GS}=-20V$	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=40A$	-	2.6	3.8	m Ω
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2	3	4	V
Dynamic characteristics						
Gate capacitance	R_g	$V_{GS}=0V, V_{DS}=0V, f=1.0MHz$	-	2.6	-	Ω
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=5A$	-	31	-	S
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V$ $f=1.0MHz$	-	9500	-	pF
Output Capacitance	C_{oss}		-	3300	-	pF
Reverse Transfer Capacitance	C_{rss}		-	284	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	$t_{d(ON)}$	$I_D=20A, V_{DS}=75V$ $R_G=3\Omega, V_{GS}=10V$	-	32	-	ns
Rise Time	t_r		-	60	-	ns
Turn-off Delay Time	$t_{d(OFF)}$		-	87	-	ns
Fall Time	t_f		-	48	-	ns
Total Gate Charge	Q_g	$I_D=20A, V_{DS}=75V$ $V_{GS}=10V$	-	125	-	nC
Gate to Source Charge	Q_{gs}		-	46	-	nC
Gate to Drain("Miller") Charge	Q_{gd}		-	32	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I_S		-	-	263	A
Maximum Pulsed Current(Body Diode)	I_{SM}		-	-	1052	A
Diode Forward Voltage	V_{SD}	$I_{SD}=1A, V_{GS}=0V$	-	0.66	1.2	V
Reverse Recovery Time	t_{rr}	$I_{SD}=20A, T_J=25^\circ C$ $di/dt=100A/\mu s$	-	114	-	ns
Reverse Recovery Charge	Q_{rr}		-	428	-	nC

■ TYPICAL CHARACTERISTICS

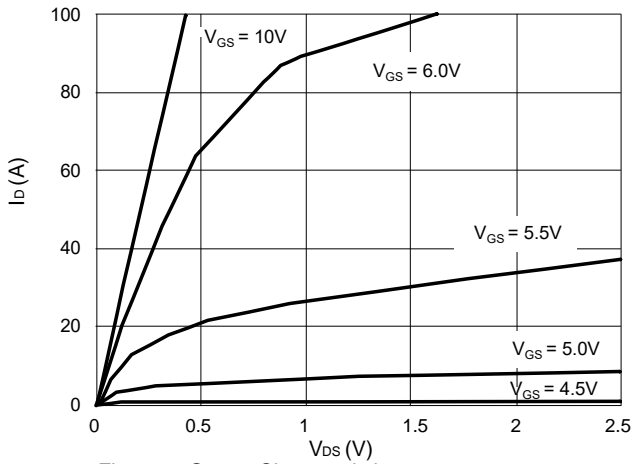


Figure 1: Output Characteristics

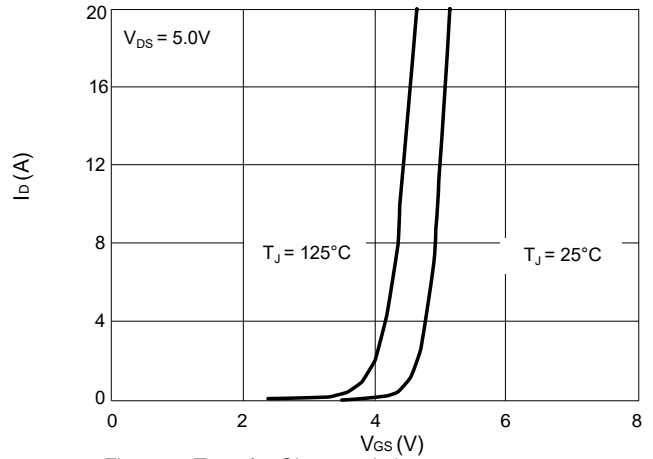


Figure 2: Transfer Characteristics

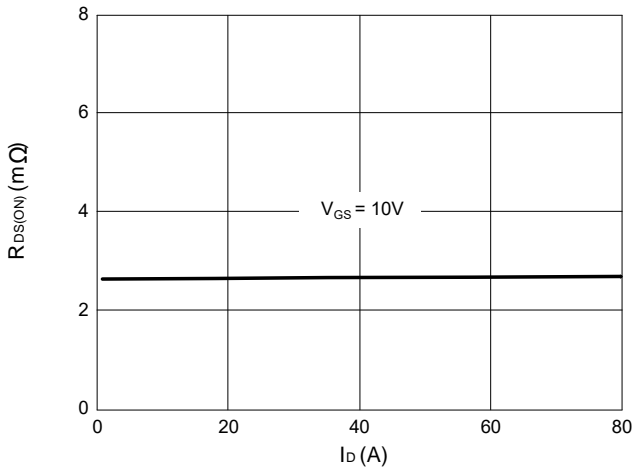


Figure 3: $R_{DS(ON)}$ vs. Drain Current

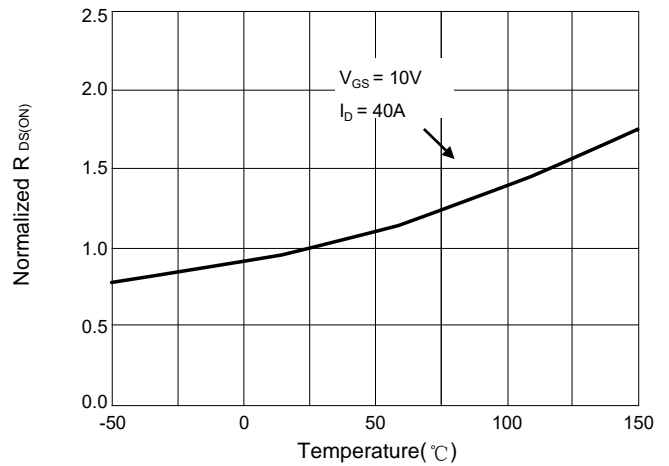


Figure 4: $R_{DS(ON)}$ vs. Junction Temperature

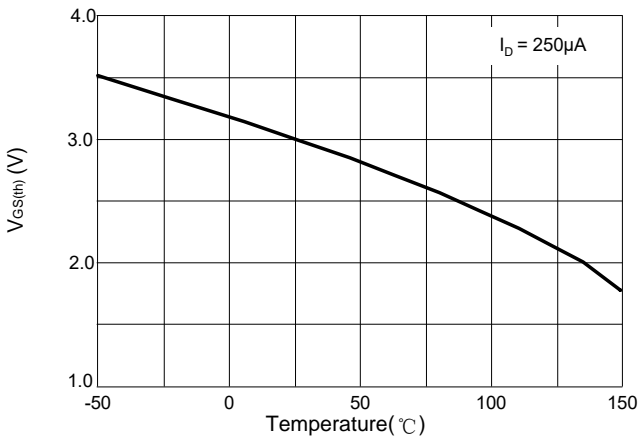


Figure 5: $V_{GS(th)}$ vs. Junction Temperature

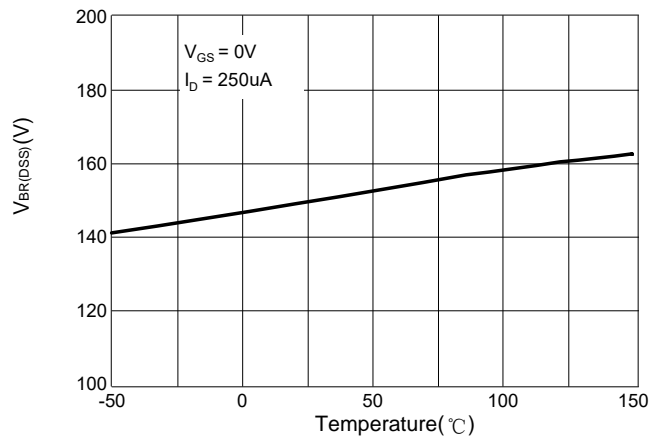


Figure 6: $V_{BR(DSS)}$ vs. Junction Temperature

■ TYPICAL CHARACTERISTICS(Cont.)

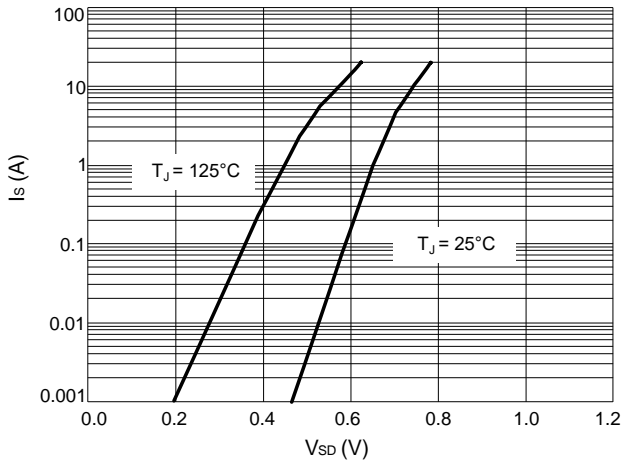


Figure 7: Body Diode Characteristics

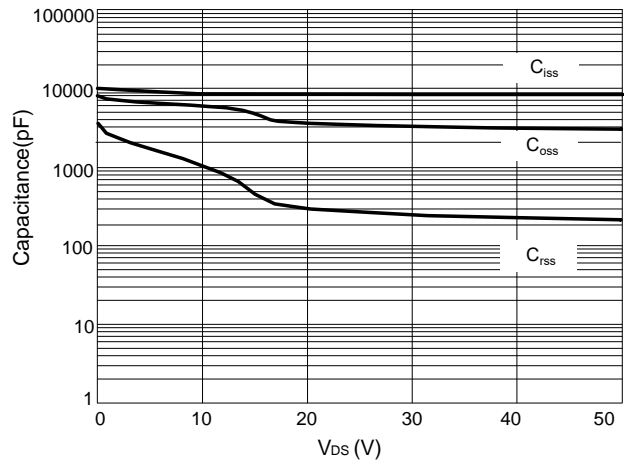


Figure 8: Capacitance Characteristics

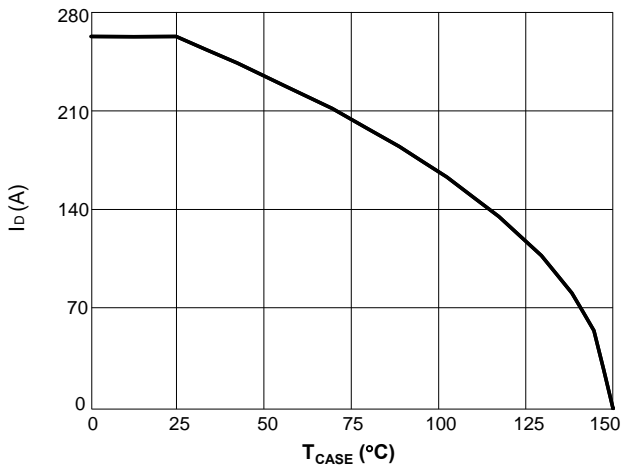


Figure 9: Current De-rating

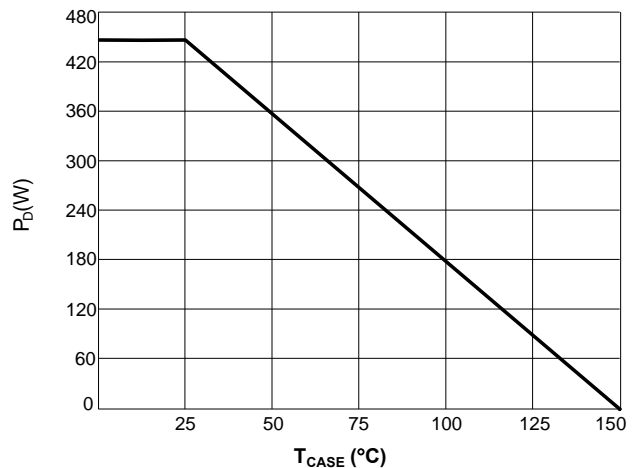


Figure 10: Power De-rating

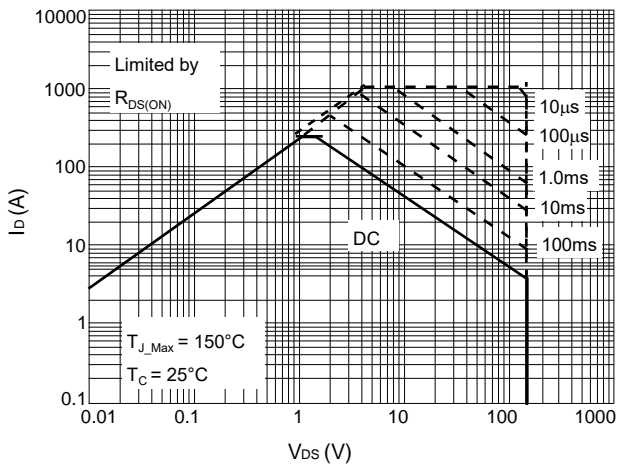
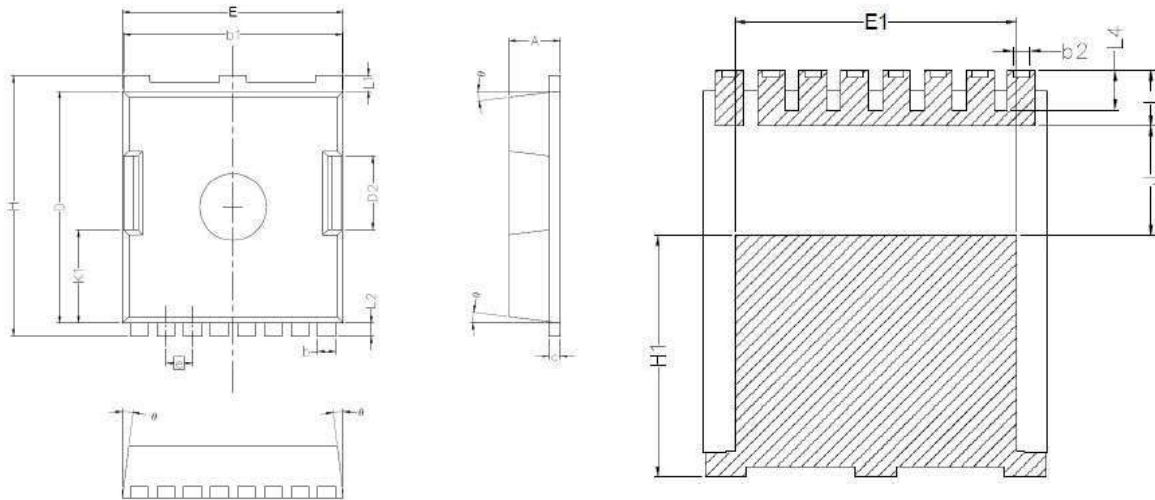


Figure 11: Maximum Safe Operating Area

■ TOLL 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°