

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
40V	0.75mΩ@10V	320A
	1.4mΩ@4.5V	

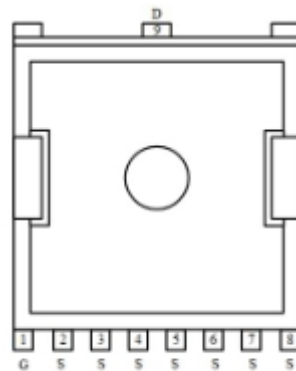
Feature

- Fast Switching
- Low Gate Charge and Rdson
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

Application

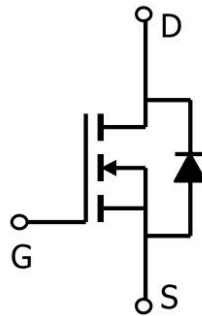
- PWM Application
- Hard switched and high frequency circuits
- Power Management

Package

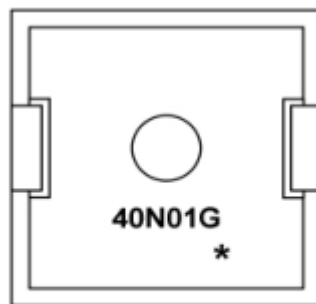


Toll

Circuit diagram



Marking



40N01G
*

=Device Code
=Month Code

Absolute maximum ratings

(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	40	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current(Tc=25°C)	I _D	320	A
Pulsed Drain Current	I _{DM}	1280	A
Single Pulse Avalanche Energy ¹	E _{AS}	1406	mJ
Total Power Dissipation ² (Tc=25°C)	P _D	300	W
Thermal Resistance Junction-Case	R _{θJC}	0.41	°C/W
Storage Temperature Range	T _{STG}	-55 to 150	°C
Operating Junction Temperature Range	T _J	-55 to 150	°C

Electrical characteristics

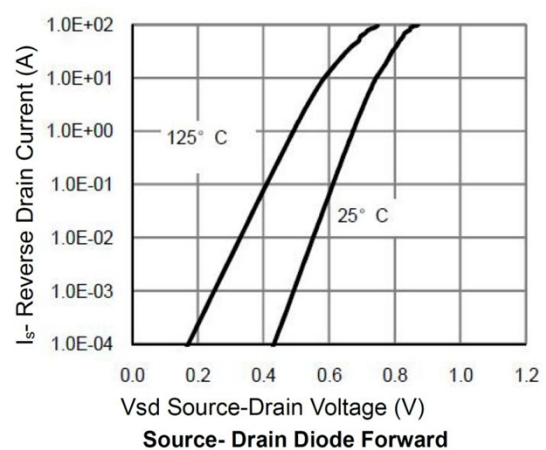
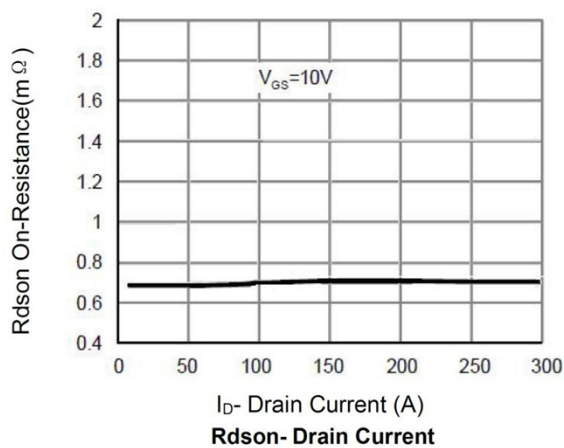
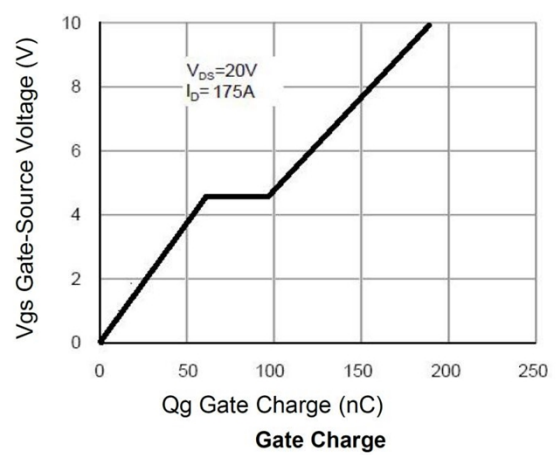
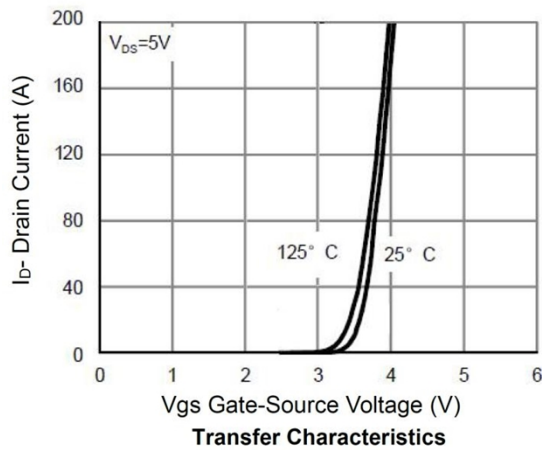
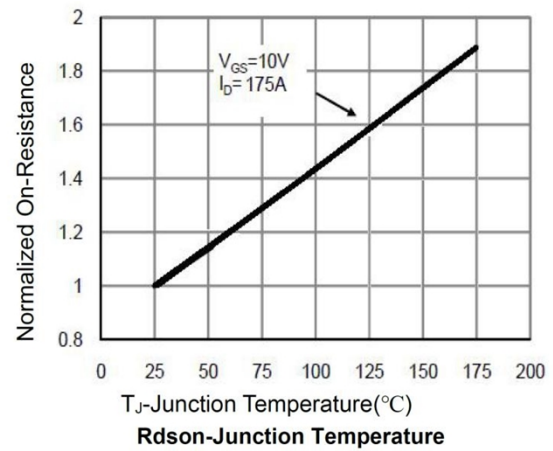
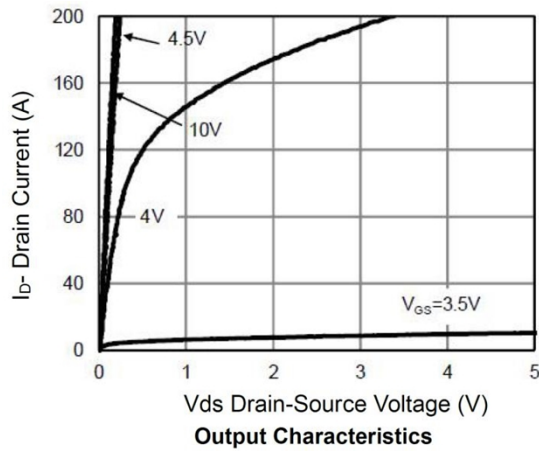
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

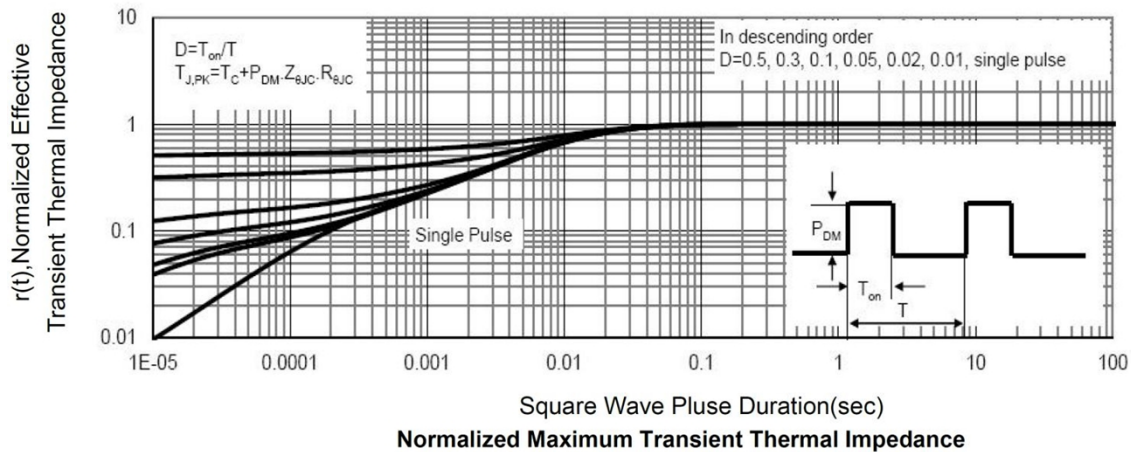
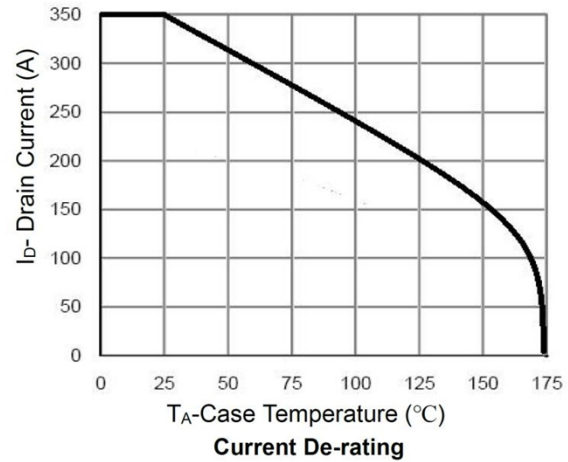
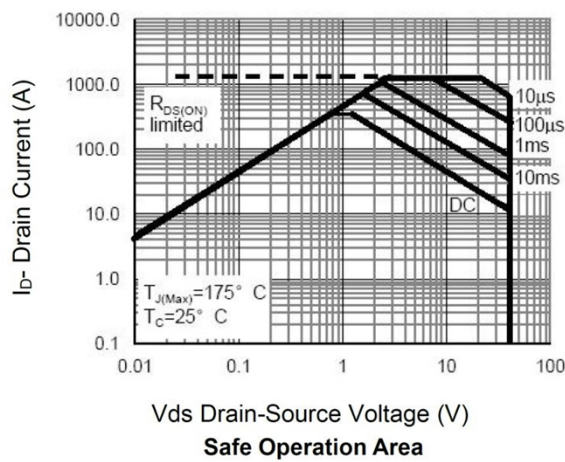
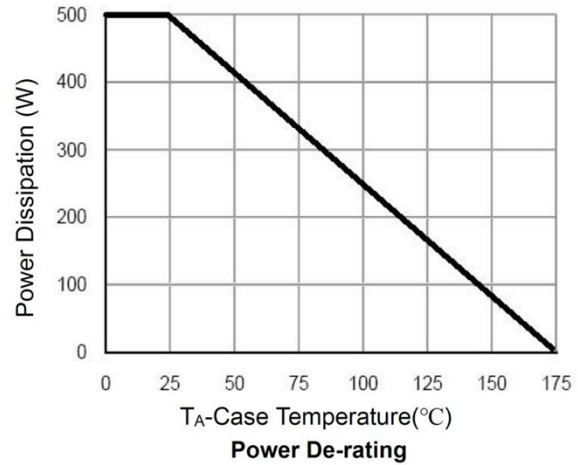
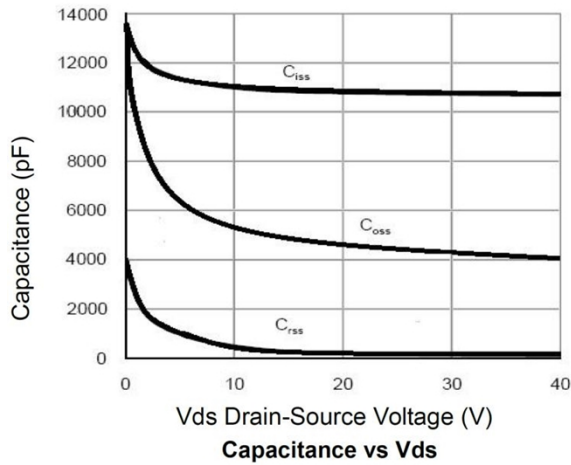
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV (BR)DSS	V _{GS} = 0V, I _D =250μA	40			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =32V,V _{GS} = 0V, T _J =25°C			1	uA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V , V _{DS} =0V			±100	uA
Gate-source threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.6	2.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =50A		0.75	1.1	mΩ
		V _{GS} =4.5V, I _D =50A		1.4	1.8	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =20V, V _{GS} =0V, f=1MHz		7515		pF
Output Capacitance	C _{oss}			1854		
Reverse Transfer Capacitance	C _{rss}			122		
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} =20V, V _{GS} =10V, I _D =85A		128		pF
Gate-Source Charge	Q _{gs}			19		
Gate-Drain Charge	Q _{gd}			12		
Turn-On Delay Time	T _{d(on)}	V _{DD} =20V, V _{GS} =10V, R _G =1.6Ω, I _D =85A		13.5		nS
Rise Time	T _r			8.8		
Turn-Off Delay Time	T _{d(off)}			52		
Fall Time	T _f			9.6		
Diode Characteristics						
Diode Forward Voltage ²	V _{SD}	V _{GS} =0V, I _S =1A,T _J =25°C			1.2	V

Note:

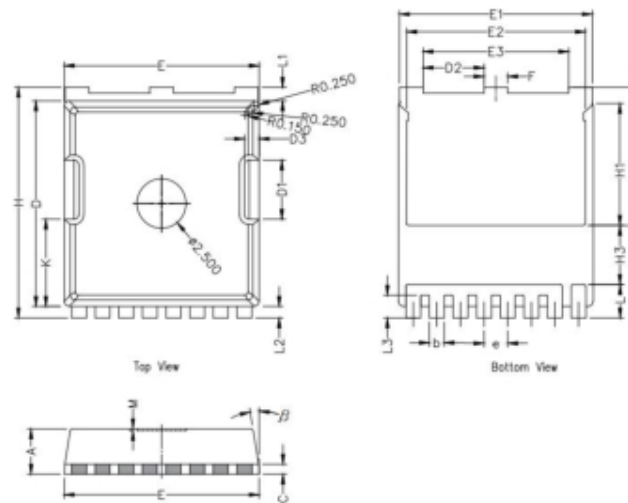
1. The EAS data shows Max. rating . The test condition is $V_{DD} = 20V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$
2. The power dissipation is limited by 150°C junction temperature

Typical Characteristics





TOLL Package Information



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
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		
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		
L	1.55	1.70	1.85
L1	0.55	0.7	0.85
L2	0.45	0.6	0.75
M	0.08 REF.		
β	8°	10°	12°
K	4.25	4.40	4.55