

1.Product Summary

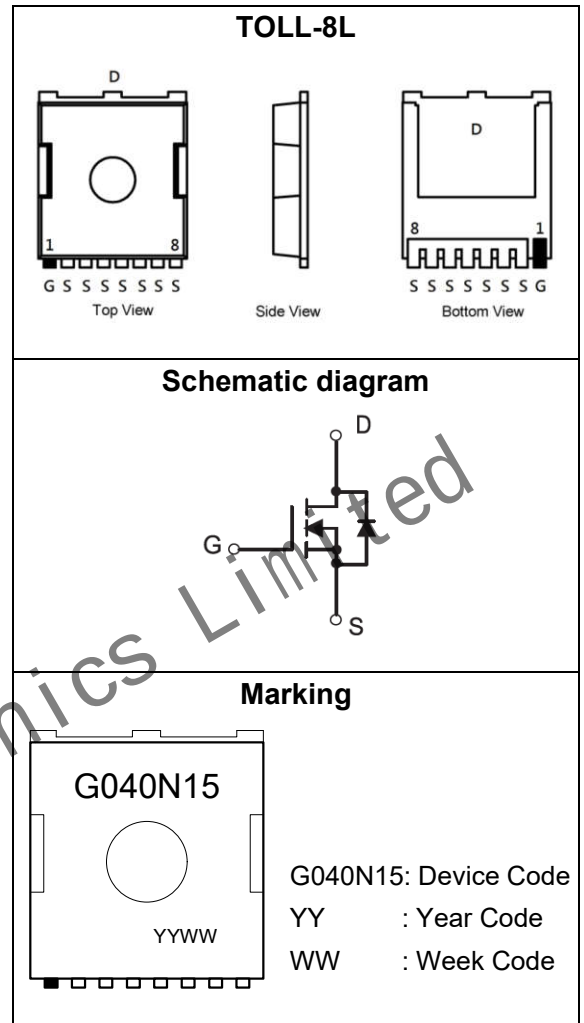
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
150V	3.4mΩ@10V	240A

2.Features

- V_{DS} 150V
- I_D 240A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) <4.1 mohm
- Very low on-resistance $R_{DS(on)}$

3.Applications

- DC/DC in Telecoms and Industrial
- Synchronous Rectification in SMPS
- Hard Switching and High Speed Circuit



4.Absolute Maximum rating ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	240	A
Pulsed Drain Current	I_{DM}	777	
Total Power Dissipation	P_D	500	W
$T_C=25^\circ\text{C}$			
Single pulse avalanche energy ¹	E_{AS}	1796	mJ
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	20	$^\circ\text{C/W}$
Thermal Resistance from Junction-to-Case	$R_{\theta JC}$	0.23	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

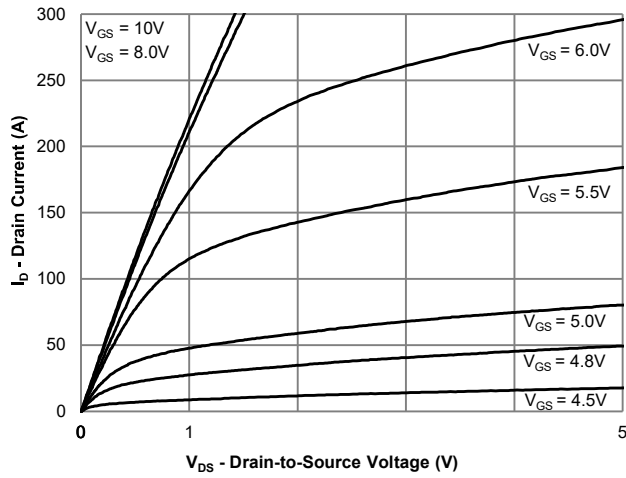
5. Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	150	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=150V, V_{GS}=0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.5	3.4	4.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$	-	3.4	4.1	m Ω
Forward Transconductance	g_{fs}	$V_{DS} = 5.0V, I_D = 20A$	-	58	-	S
Dynamic Characteristics						
Gate Resistance	R_G	$V_{GS}=0V, V_{DS}=0V, f=1MHz$	-	2.2	-	Ω
Input Capacitance	C_{iss}	$V_{DS}=75V, V_{GS}=0V, f=1MHz$	-	6238	-	pF
Output Capacitance	C_{oss}		-	783	-	
Reverse Transfer Capacitance	C_{rss}		-	23	-	
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{GEN}=10V, V_{DD}=75V, I_D=20A$ $R_{GEN}=3\Omega$	-	20	-	nS
Turn-on Rise Time	t_r		-	41	-	
Turn-Off Delay Time	$t_{d(off)}$		-	58	-	
Turn-Off Fall Time	t_f		-	44	-	
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=75V, I_D=20A$	-	91	-	nC
Gate-Source Charge	Q_{gs}		-	26	-	
Gate-Drain Charge	Q_{gd}		-	2.1	-	
Source - Drain Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=10A$	-	0.7	1.2	V

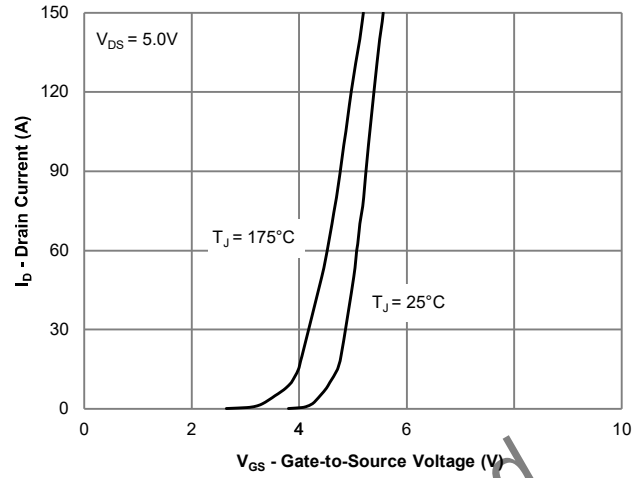
Note:

1. This current is chip limited, which is calculated based on R_{thjc} .
2. This current is calculated on single pulse with 10 μ s Pulse & Duty Cycle = 1%.
3. Defined by design, not subject to production test, EAS condition: $T_J=25^\circ\text{C}$, $V_{DD}=75V$, $V_{GS}=10V$, $L=1.0mH$.
4. Device mounted on FR-4 substrate PC board with 2oz copper in 1inch square cooling area.
5. Thermal resistance from junction to soldering point (on the exposed drain pad).
6. Short duration pulse test used to minimize self-heating effect.
7. Defined by design, not subject to production.

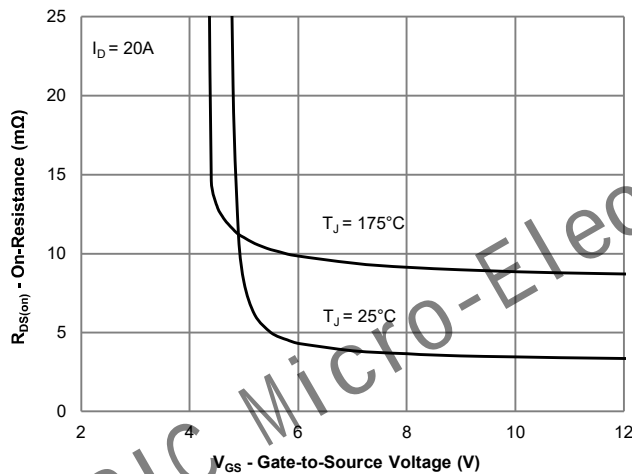
6. Typical Characteristic



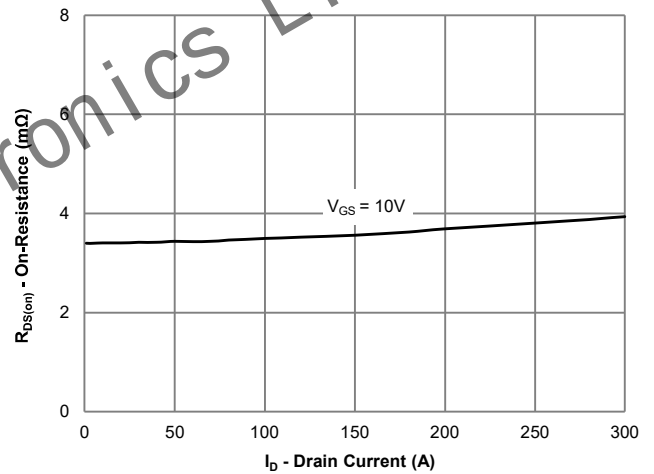
Output Characteristics



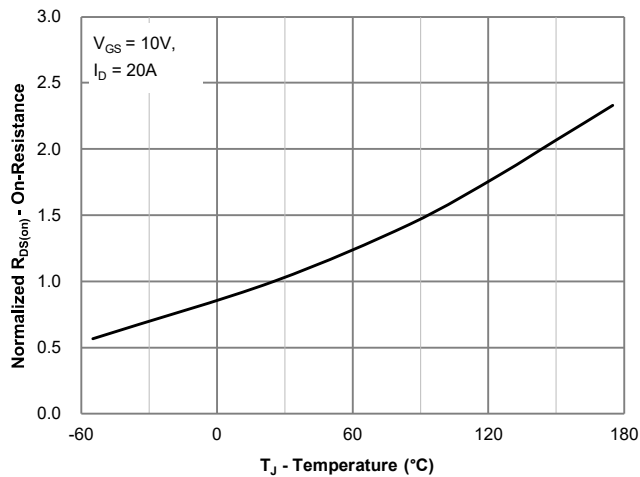
Transfer Characteristics



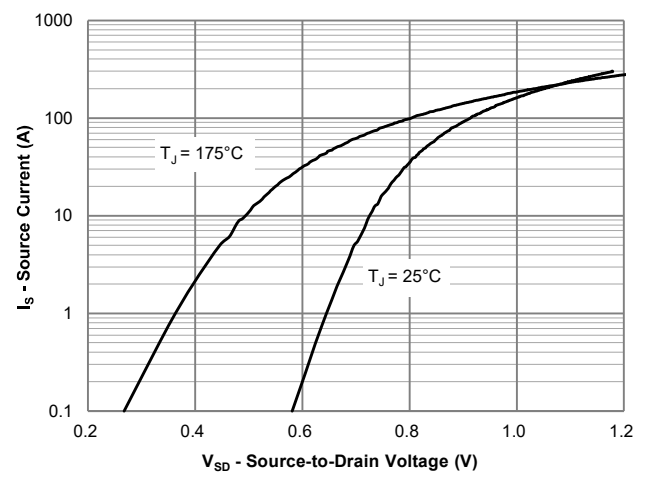
On-Resistance vs. Gate-Source Voltage



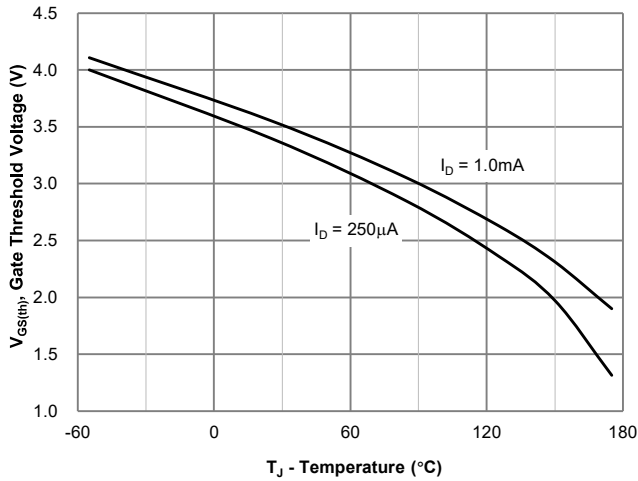
On-Resistance vs. Drain Current



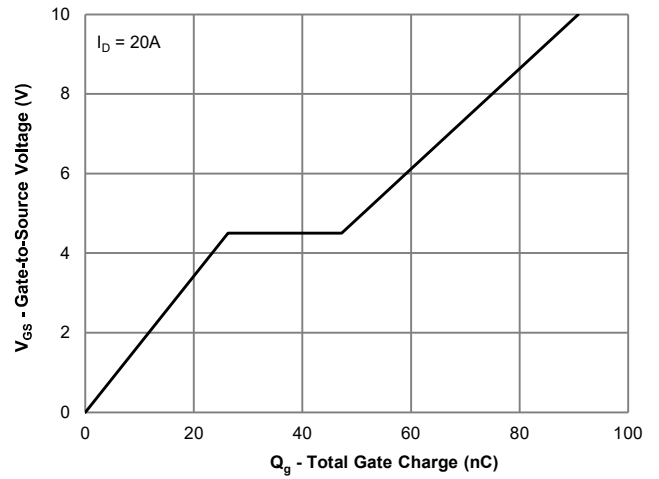
On-Resistance vs. Junction Temperature



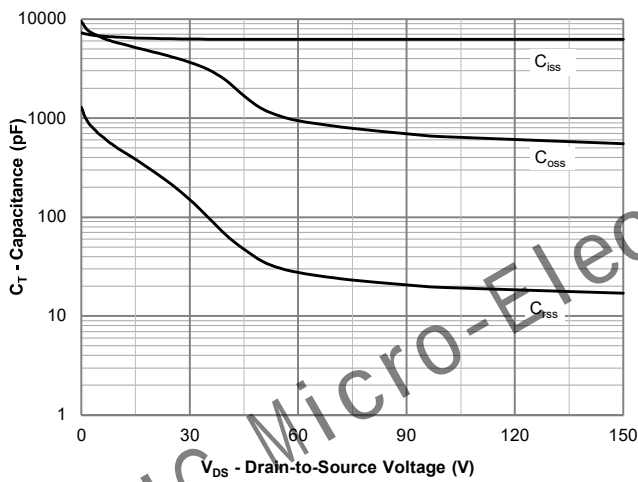
Source-Drain Diode Forward Voltage



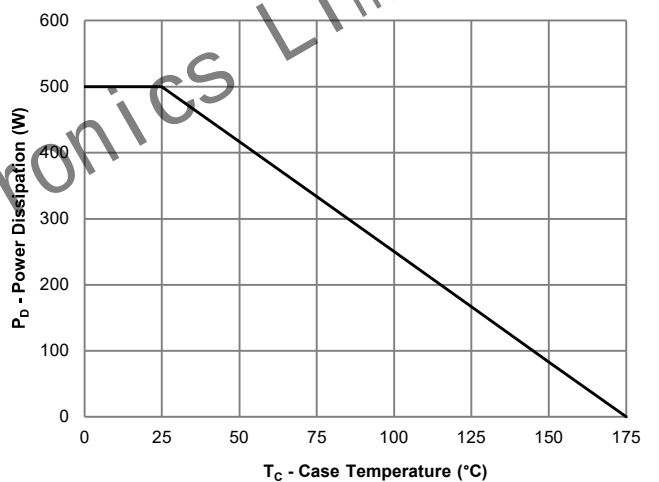
Gate Threshold Variation vs. Junction Temperature



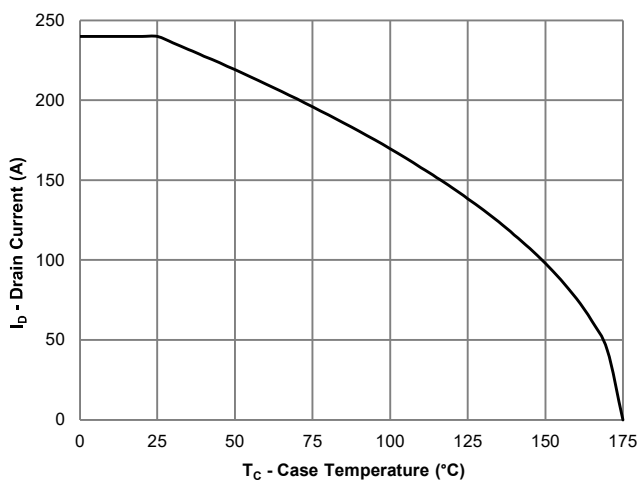
Gate Charge Characteristics



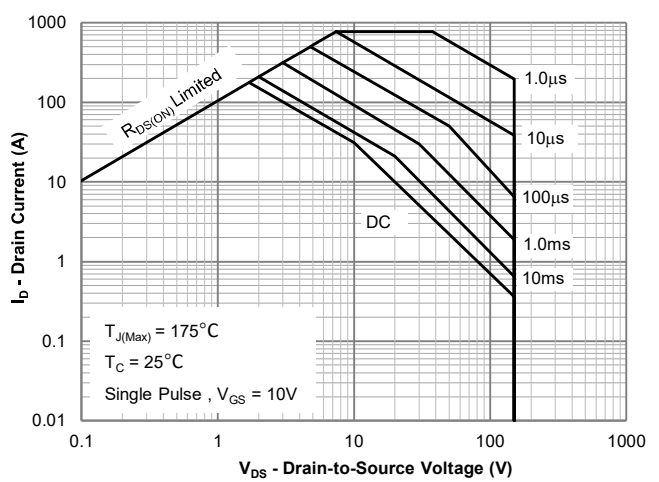
Capacitance Characteristics



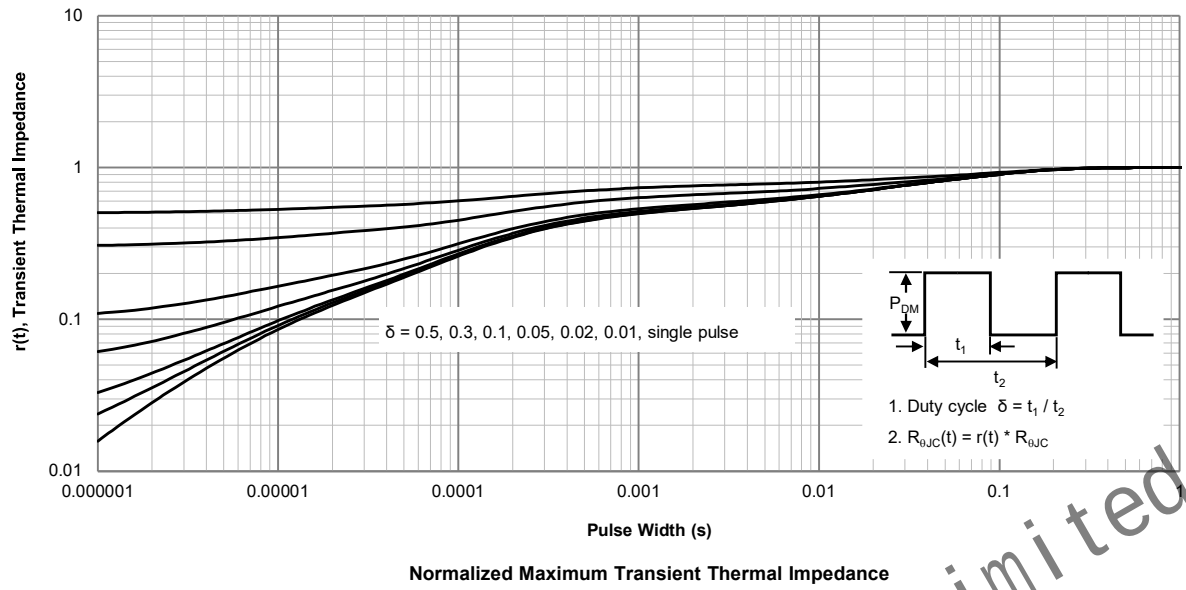
Power Derating



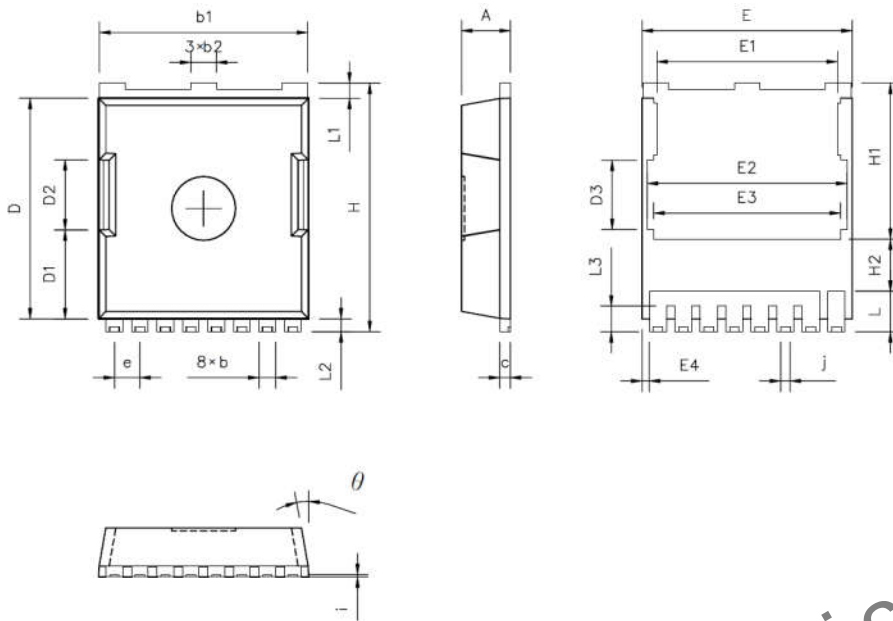
Current Derating



Safe Operating Area



7. Dimension



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	2.20	2.40	0.087	0.094
b	0.70	0.90	0.028	0.035
b1	9.70	9.90	0.382	0.39
b2	1.20 REF.		0.047 REF.	
c	0.40	0.60	0.016	0.024
D	10.28	10.48	0.405	0.413
D1	4.08	4.28	0.161	0.169
D2	3.20	3.40	0.126	0.134
D3	3.16	3.36	0.124	0.132
E	9.80	10.00	0.386	0.394
E1	8.40	8.60	0.330	0.338
E2	9.30	9.50	0.366	0.374
E3	8.8 REF.		0.346 REF.	
E4	0.25	0.45	0.01	0.018
e	1.20 BASIC		0.047 BASIC	
H	11.58	11.78	0.456	0.464
H1	7.23	7.43	0.285	0.293
H2	2.45 REF.		0.096 REF.	
i	0.10	-	0.004	
j	0.45 REF.		0.018 REF.	
L	1.60	2.10	0.063	0.083
L1	0.60	0.80	0.024	0.031
L2	0.50	0.70	0.020	0.028
L3	1.05	1.30	0.041	0.051
θ	10° REF.		10° REF.	

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