Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
85V	1.7mΩ@10V	310A

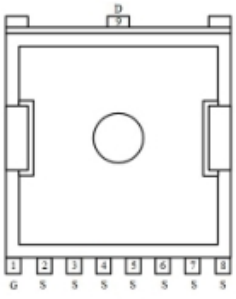
Feature

- Fast Switching
- Low Gate Charge and Rdson
- Low Reverse transfer capacitances
- 100% Single Pulse avalanche energy Test

Applications

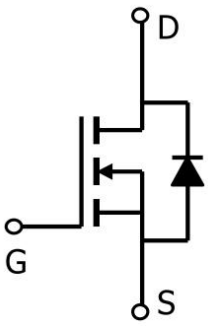
- Power switching application
- DC-DC Converter
- Uninterruptible power supply

Package

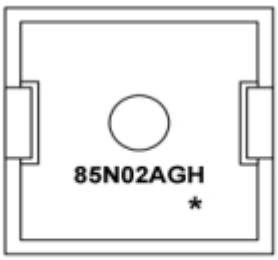


Toll

Circuit diagram



Marking



85N02AGH : Product code
*** : Month code**

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain source voltage	V_{DS}	85	V
Gate source voltage	V_{GS}	±20	V
Continuous drain current(Tc=25℃)	I_D	310	A
Pulsed drain current	I_{DM}	1240	A
Power dissipation(Tc=25℃)	P_D	420	W
Single pulsed avalanche energy[1)]	E_{AS}	405	mJ
Thermal resistance, junction-case	$R_{\theta JC}$	0.35	℃/W
Operation and storage temperature	T_J, T_{STG},	-55 to 150	℃

Electrical characteristics

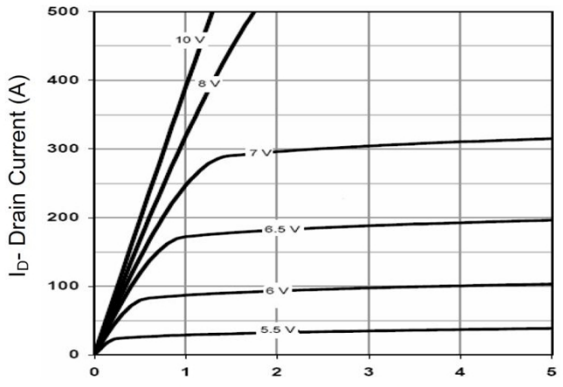
(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$BV_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	80			V
Drain Cut-Off Current	I_{DSS}	V_{DS} =68V, V_{GS} = 0V			1	uA
Gate-Body Leakage Current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±0.1	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2.0	2.8	4.0	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =20A		1.7	2.5	mΩ
Dynamic Characteristics						
Input capacitance	C_{iss}	V_{DS}=40V, V_{GS}=0V, f=1MHz		9860		pF
Output capacitance	C_{oss}			1670		
Reverse transfer capacitance	C_{rss}			76		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS}=40V, V_{GS}=10V, I_D =165A		143		pF
Gate-Source Charge	Q_{gs}			51		
Gate-Drain Charge	Q_{gd}			25		
Turn-on Delay Time	$T_{d(on)}$	V_{GS}=10V, V_{DS}=40V, I_D =165A, R_G =1.6Ω		27		nS
Turn-on Rise Time	T_r			75		
Turn-Off Delay Time	$T_{d(off)}$			86		
Turn-Off Fall Time	t_f			35		
Drain-Source Body Diode Characteristics						
Source-Drain Diode Forward Voltage	V_{SD}	I_S = 1A, V_{GS} = 0V			1.2	V

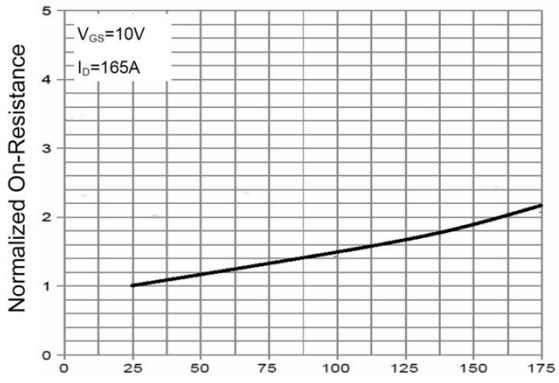
Note:

1. E AS is tested at starting T_j = 25℃, V_{DD} =45V,V_{GS} = 10V,L = 0.1mH, Rg=25Ω;

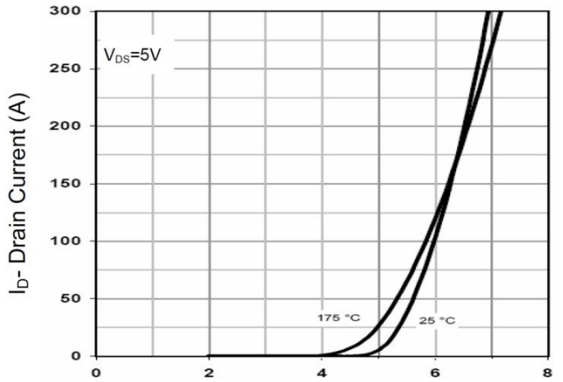
Typical Characteristics



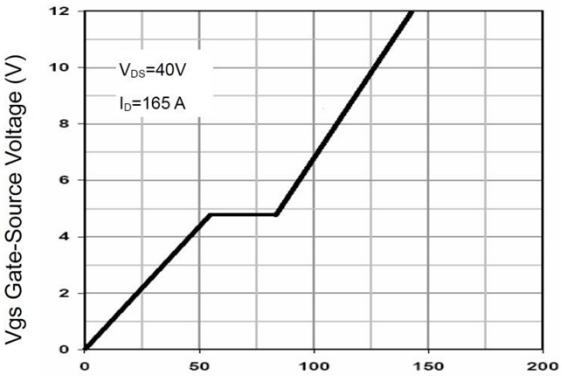
Output Characteristics



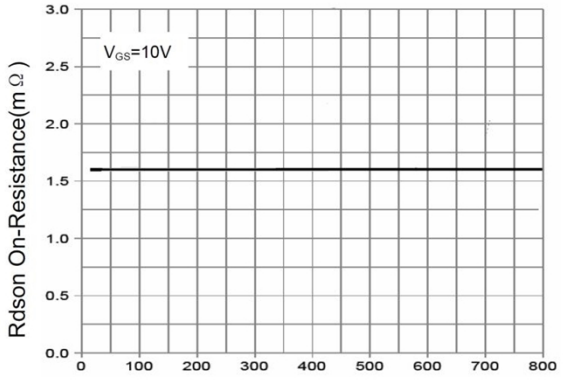
Rdson-Junction Temperature



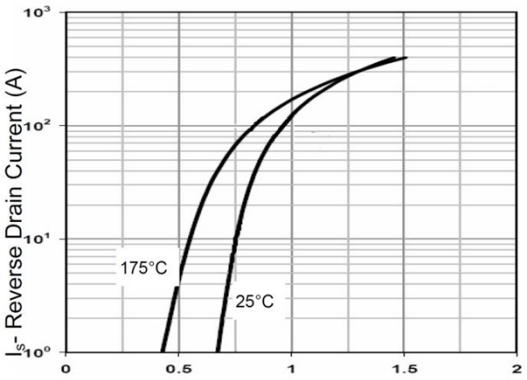
Transfer Characteristics



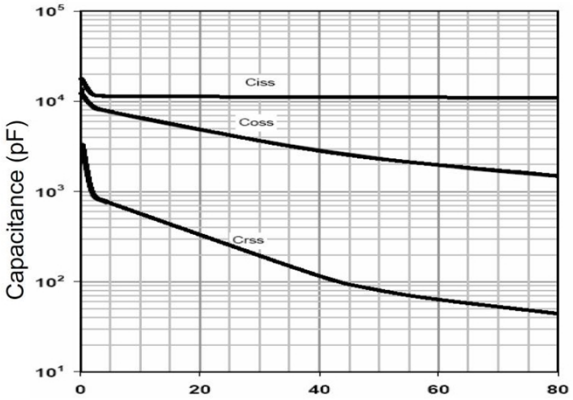
Gate Charge



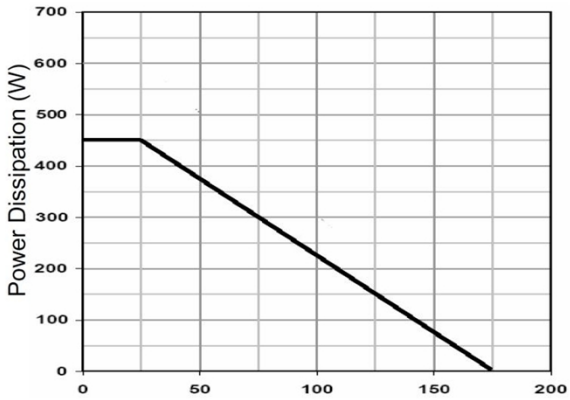
Rdson- Drain Current



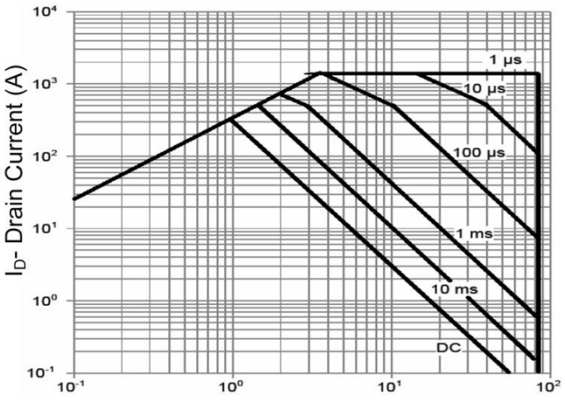
Source- Drain Diode Forward



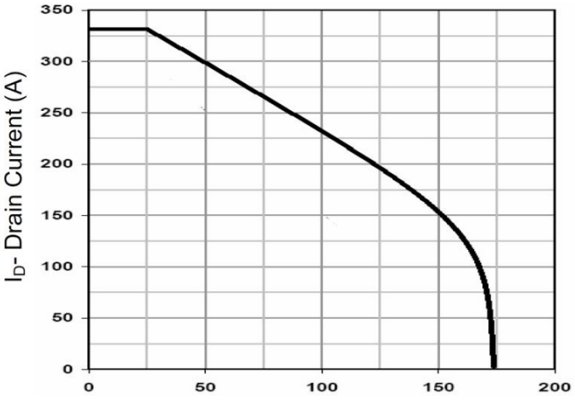
Capacitance vs Vds



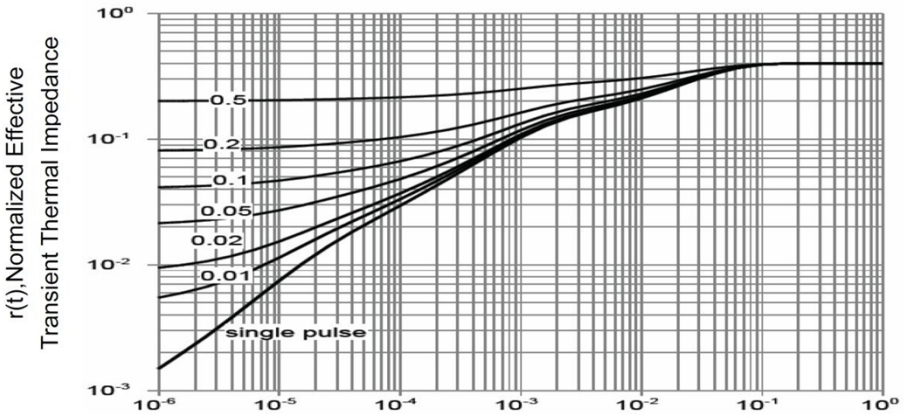
Power De-rating



Safe Operation Area

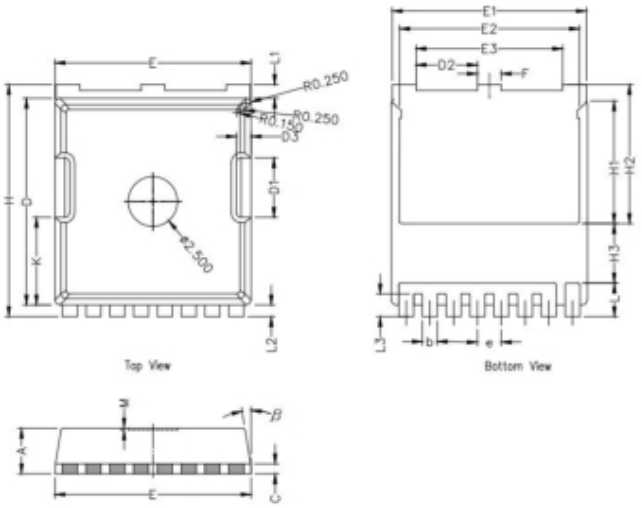


Current De-rating



Normalized Maximum Transient Thermal Impedance

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