

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
85V	1.9mΩ@10V	260A

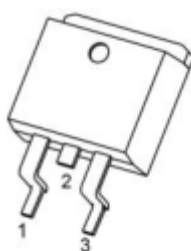
Feature

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

Applications

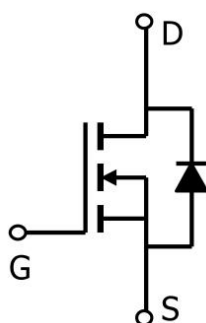
- Power switching application
- DC-DC Converter
- Uninterruptible power supply

Package

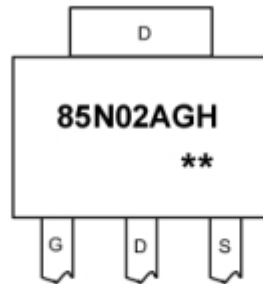


TO-263(1:G 2:D 3:S)

Circuit diagram



Marking



85N02AGH : Product code
****** : Week code

Absolute maximum ratings

(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain source voltage	V _{DS}	80	V
Gate source voltage	V _{GS}	±20	V
Continuous drain current(Tc=25°C)	I _D	260	A
Pulsed drain current	I _{DM}	1040	A
Power dissipation(Tc=25°C)	P _D	300	W
Single pulsed avalanche energy ¹⁾	E _{AS}	375	mJ
Thermal resistance, junction-case	R _{θJC}	0.42	°C/W
Operation and storage temperature	T _J , T _{STG}	-55 to 150	°C

Electrical characteristics

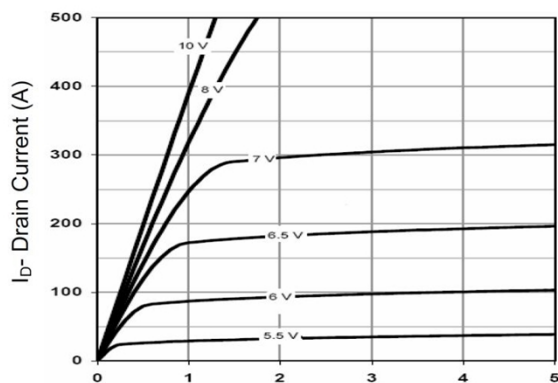
($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV (BR)DSS	V _{GS} = 0V, I _D =250μA	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	2.5	3	3.5	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		1.9	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

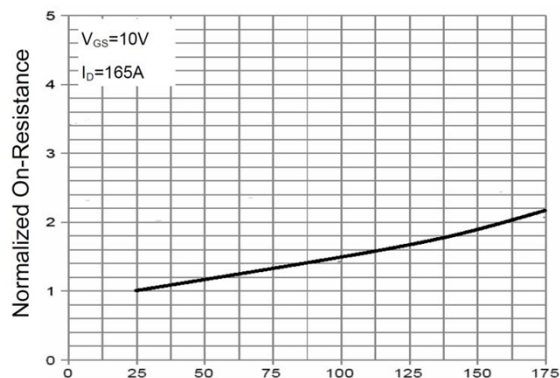
Note:

1. E AS is tested at starting $T_j = 25^{\circ}\text{C}$, $V_{DD} = 45V, V_{GS} = 10V, L = 0.1mH, R_g = 25\Omega$;

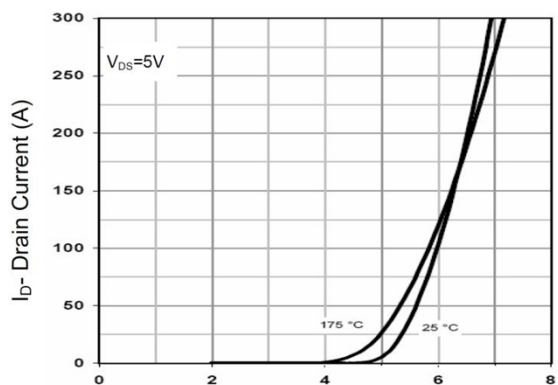
Typical Characteristics



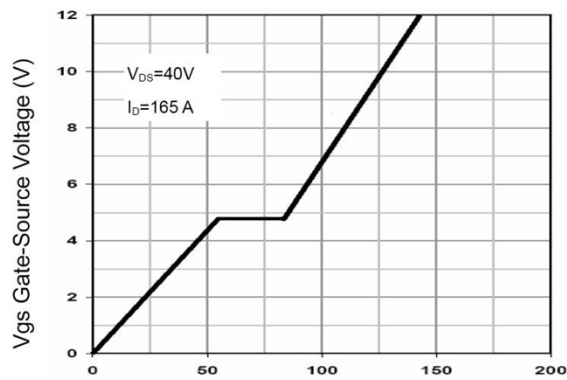
V_{ds} -Drain-Source Voltage (V)
Output Characteristics



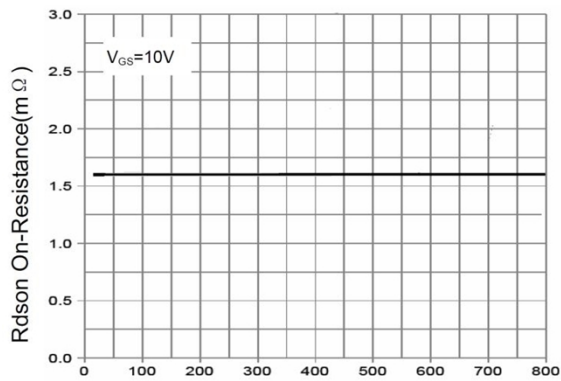
T_J -Junction Temperature ($^{\circ}\text{C}$)
 $R_{ds(on)}$ -Junction Temperature



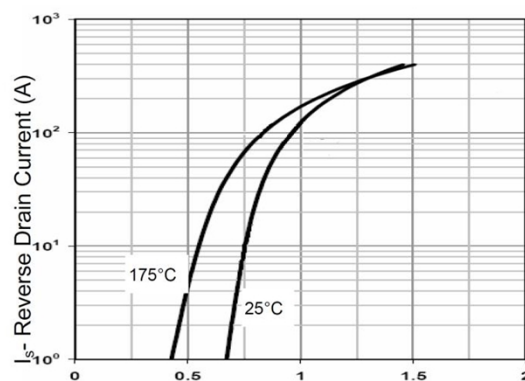
V_{gs} -Gate-Source Voltage (V)
Transfer Characteristics



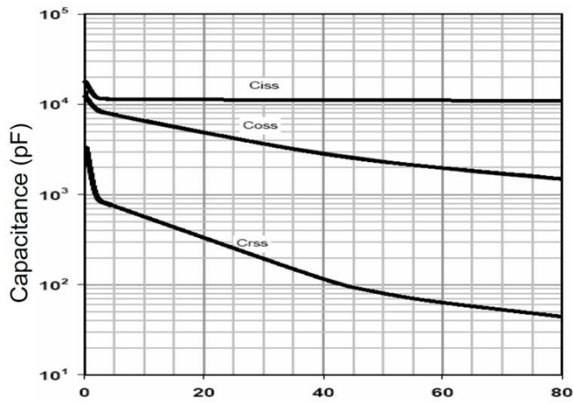
Q_g -Gate Charge (nC)
Gate Charge



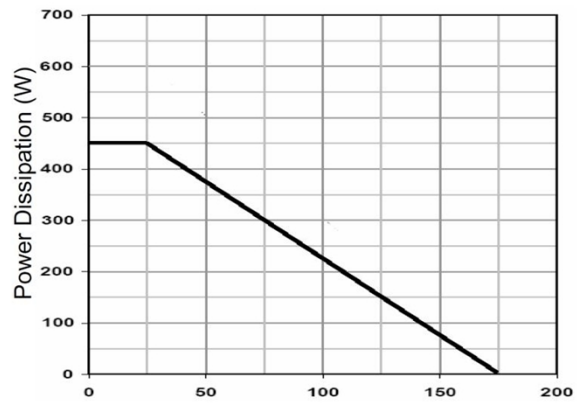
I_D -Drain Current (A)
 $R_{ds(on)}$ -Drain Current



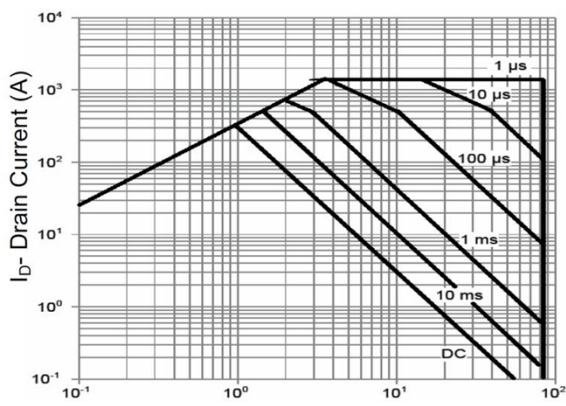
V_{sd} -Source-Drain Voltage (V)
Source-Drain Diode Forward



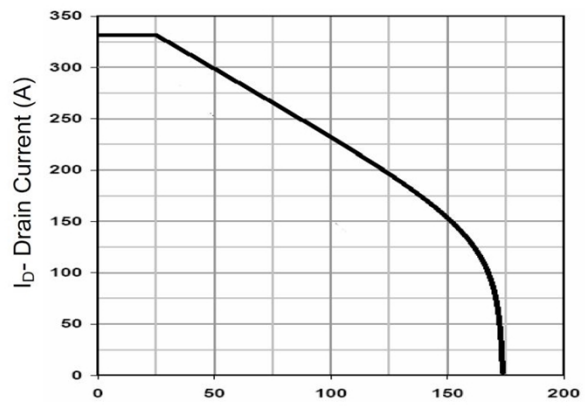
Vds Drain-Source Voltage (V)
Capacitance vs Vds



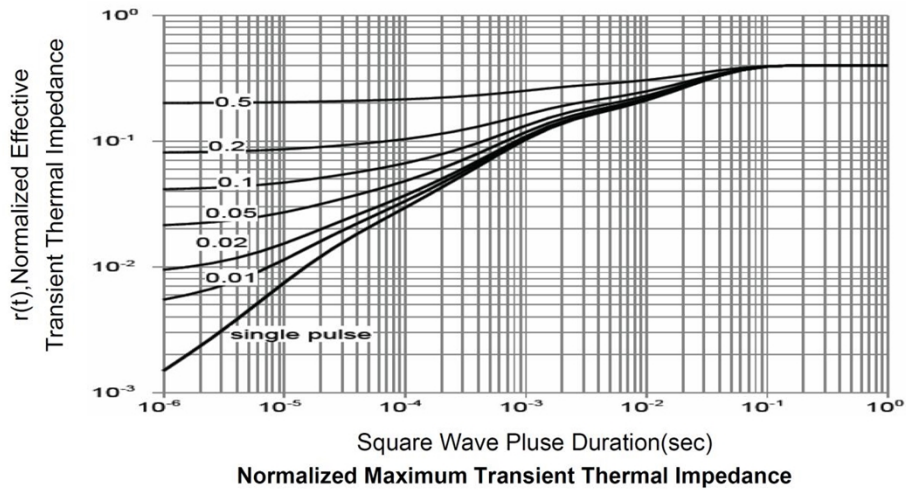
Tj-Junction Temperature (°C)
Power De-rating



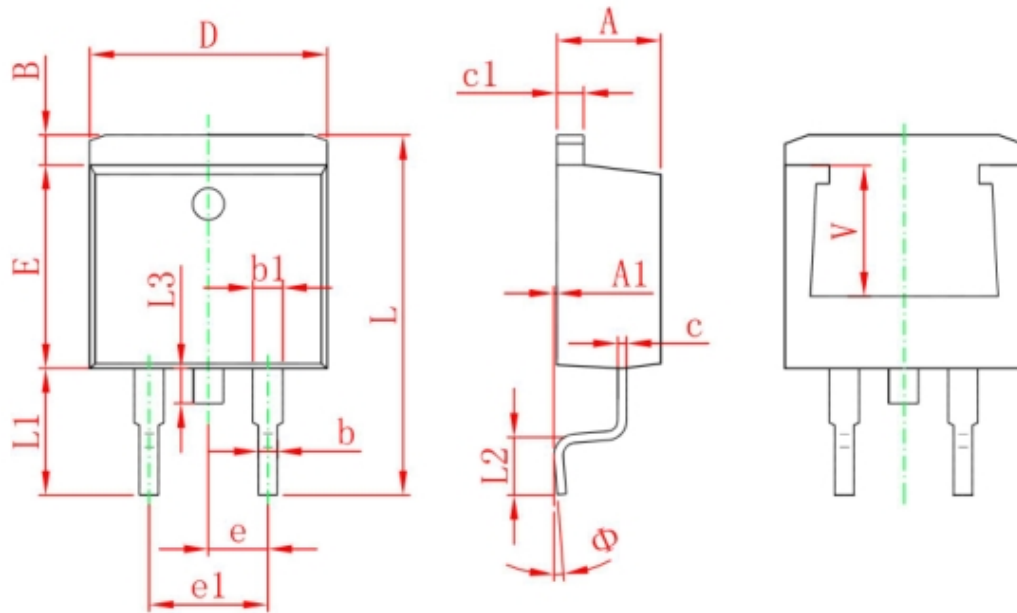
Vds Drain-Source Voltage (V)
Safe Operation Area



Tj-Junction Temperature (°C)
Current De-rating



TO-263 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.470	4.670	0.176	0.184
A1	0.000	0.150	0.000	0.006
B	1.120	1.420	0.044	0.056
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
L	14.940	15.500	0.588	0.610
L1	4.950	5.450	0.195	0.215
L2	2.340	2.740	0.092	0.108
L3	1.300	1.700	0.051	0.067
Φ	0°	8°	0°	8°
V	5.600 REF.		0.220 REF.	