

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
650V	340mΩ@10V	14A

Feature

- Low on-resistance
- Low gate charge

Application

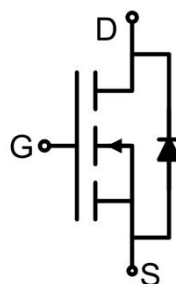
- Power factor correction (PFC)
- Uninterruptible Power Supply (UPS)

Package

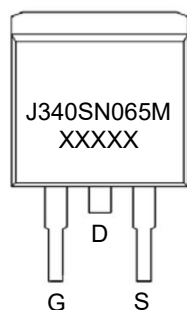


TO-263AB

Circuit diagram



Marking



Absolute Maximum Ratings (T_c=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V _{GS} =0V)	V _{DS}	650	V
Gate-Source Voltage	V _{GS}	±30	V
Continuous Drain Current	I _D	14	A
Pulsed Drain Current ¹⁾	I _{DM}	30	A
Single Pulse Avalanche Energy ²⁾	E _{AS}	250	mJ
Power Dissipation ³⁾	P _D	25.5	W
Thermal Resistance Junction to Case	R _{θJC}	4.9	°C/W
Operating Junction Temperature	T _J	-55 ~ +150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_J=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	650			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =650V, V _{GS} =0V			1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±30V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.5	3.3	4.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =3.2A		280	340	mΩ
Dynamic characteristics ⁴⁾						
Input Capacitance	C _{iss}	V _{DS} =100V, V _{GS} =0V, f =1MHz		781		pF
Output Capacitance	C _{oss}			30.3		
Reverse Transfer Capacitance	C _{rss}			1.47		
Total Gate Charge	Q _g	V _{DS} =400V, V _{GS} =10V, I _D =7A		20.4		nC
Gate-Source Charge	Q _{gs}			2.77		
Gate-Drain Charge	Q _{gd}			5.8		
Turn-on delay time	t _{d(on)}	V _{DS} =400V, V _{GS} =10V, I _D =7A R _G =4.7Ω		6.2		nS
Turn-on rise time	t _r			21		
Turn-off delay time	t _{d(off)}			28.8		
Turn-off fall time	t _f			22.4		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				14	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =7A			1.5	V
Reverse Recovery Time	T _{rr}	V _{GS} =0V, I _S =7A di/dt =100A/μs		218		nS
Reverse Recovery Charge	Q _{rr}			1.1		μC

Notes:

- 1) The data tested by surface mounted on a 1 inch2 FR-4 board with 20Z copper.
- 2) The EAS data shows Max. rating : L=0.5mH, I_{AS} =7A, V_{DD} =50V, R_G =25Ω.
- 3) The power dissipation is limited by 150°C junction temperature.
- 4) Guaranteed by design, not subject to production testing.

Typical Characteristics

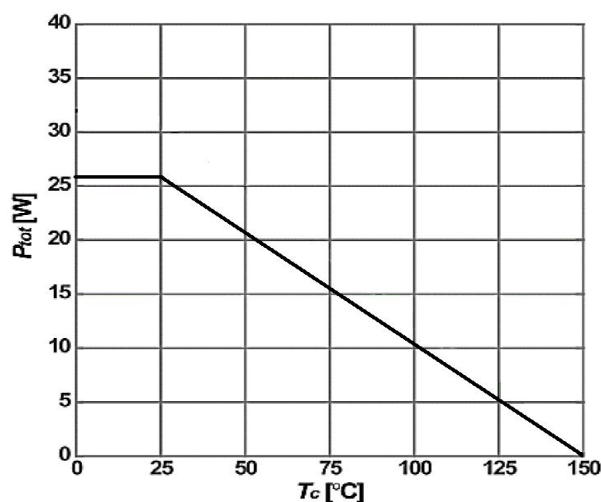


Figure1: Power dissipation

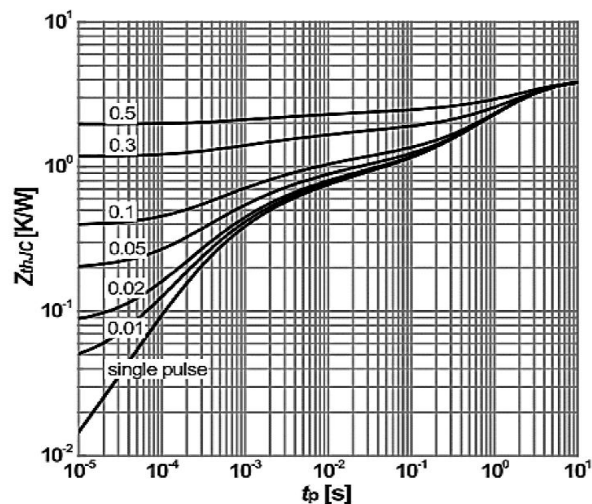


Figure2:Max.transient thermal impedance

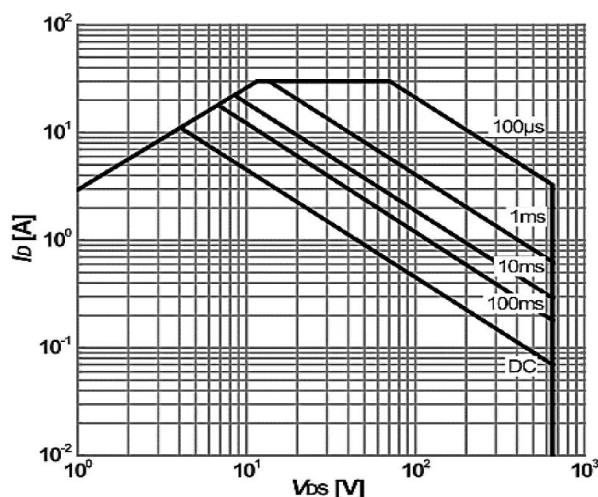


Figure3: Safe operating area

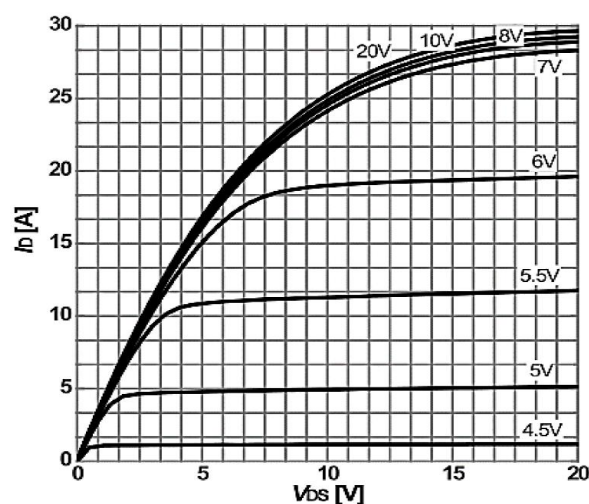


Figure 4: Typ. output characteristics

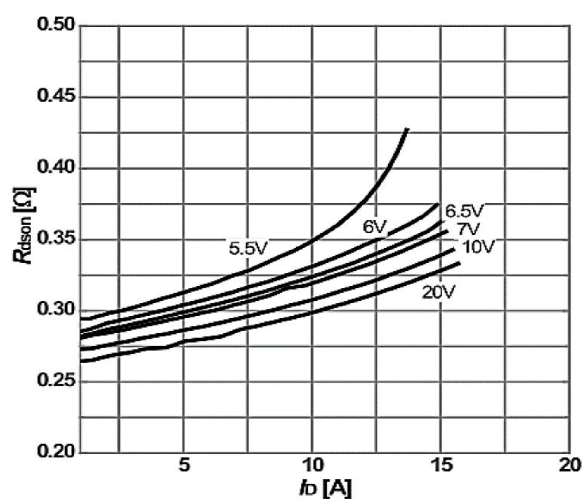


Figure5 : Typ.drain-source on-state resistance

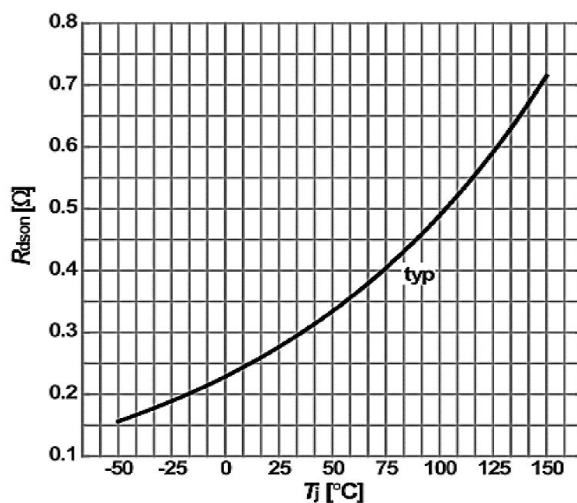


Figure 6: drain -source on-state resistance

Typical Characteristics

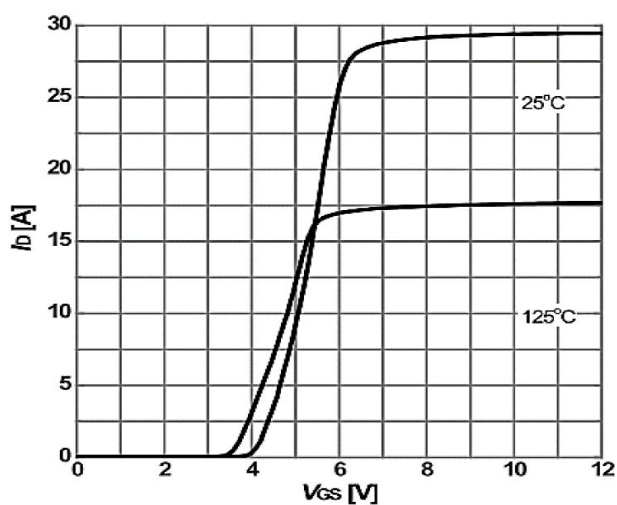


Figure7: Type. transfer characteristics

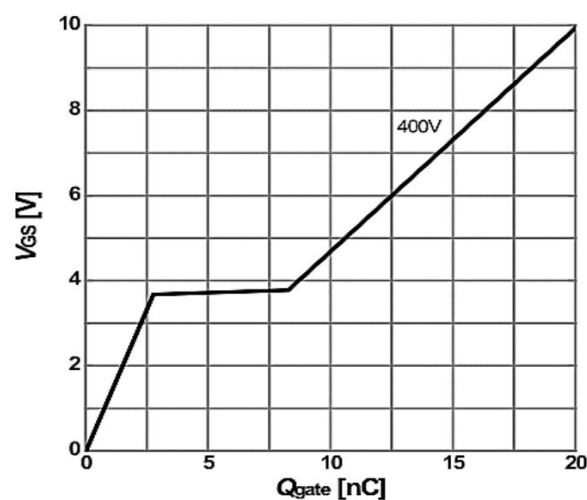
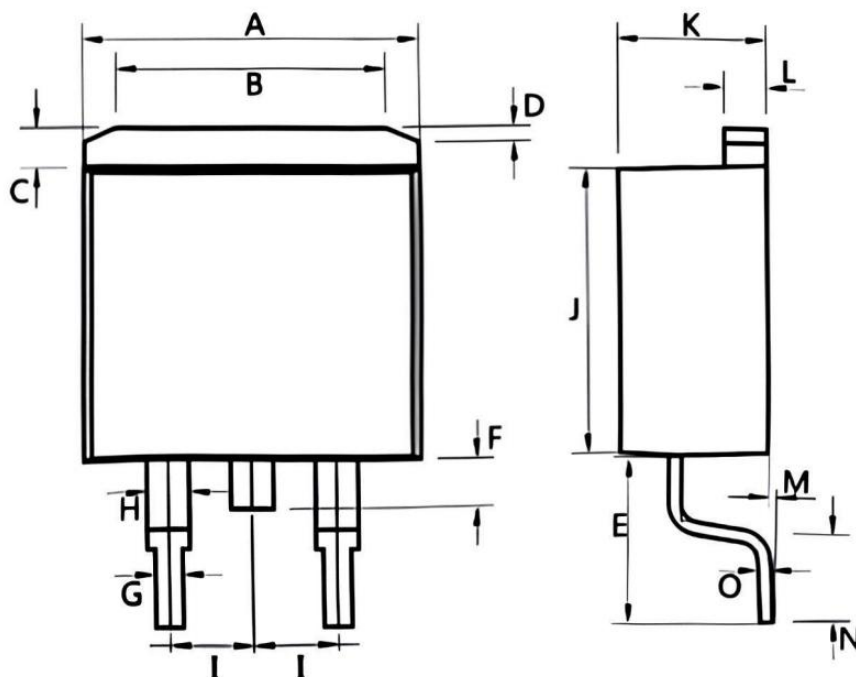


Figure 8 : Type. gate charge

TO-263AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	10.000	10.500	0.394	0.413
B	7.250	7.750	0.285	0.305
C	1.300	1.500	0.051	0.059
D	0.550	0.750	0.022	0.030
E	5.000	6.000	0.197	0.236
F	1.400	1.600	0.055	0.063
G	0.750	0.950	0.030	0.037
H	1.150	1.350	0.045	0.053
I	2.540 TYP.		2.540 TYP.	
J	8.400	8.600	0.331	0.339
K	4.400	4.600	0.173	0.181
L	1.250	1.450	0.049	0.057
M	0.020	0.100	0.001	0.004
N	2.400	2.800	0.094	0.110
O	0.350	0.450	0.014	0.018