

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
650V	130mΩ@10V	25A

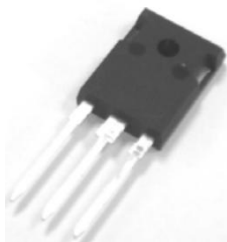
Feature

- Low on-resistance
- Low gate charge

Application

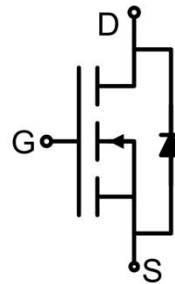
- Power factor correction (PFC)
- Uninterruptible Power Supply (UPS)

Package



TO-247AB

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	25	A
Pulsed Drain Current ¹⁾	I _{DM}	75	A
Single Pulse Avalanche Energy ²⁾	E _{AS}	750	mJ
Power Dissipation ³⁾	P _D	47	W
Thermal Resistance Junction to Case	R _{θJC}	2.65	°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	3.5	4.5	V
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =12.5A		100	130	mΩ
Dynamic characteristics ⁴⁾						
Input Capacitance	C _{iss}	V _{DS} =100V, V _{GS} =0V, f =1MHz		2113		pF
Output Capacitance	C _{oss}			92		
Reverse Transfer Capacitance	C _{rss}			1		
Total Gate Charge	Q _g	V _{DS} =325V, V _{GS} =10V, I _D =25A		49.4		nC
Gate-Source Charge	Q _{gs}			10.8		
Gate-Drain Charge	Q _{gd}			18.8		
Turn-on delay time	t _{d(on)}	V _{DS} =325V, V _{GS} =10V, I _D =25A R _G =25Ω		40		nS
Turn-on rise time	t _r			53		
Turn-off delay time	t _{d(off)}			191		
Turn-off fall time	t _f			41		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				25	A
Diode Forward voltage	V _{SD}	V _{GS} =0V, I _S =25A			1.3	V
Reverse Recovery Time	T _{rr}	V _{GS} =0V, I _S =25A di/dt =100A/μs		331		nS
Reverse Recovery Charge	Q _{rr}			5.3		uC

Notes:

- 1) The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2) The EAS data shows Max. rating . L=60mH, I_{AS} =5A, V_{DD} =50V, R_G=25Ω, Starting at T_J = 25°C.
- 3) The power dissipation is limited by 150°C junction temperature.
- 4) Guaranteed by design, not subject to production testing.

Typical Characteristics

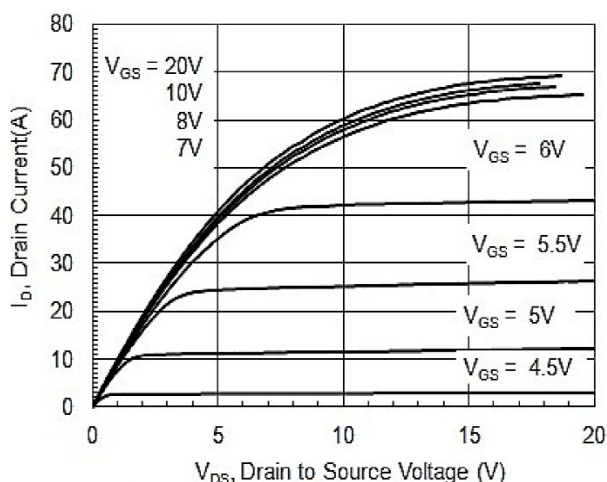


Figure1: Output characteristics

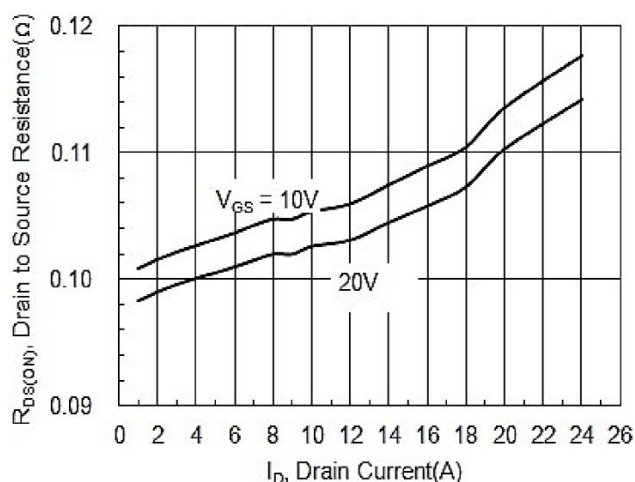


Figure2: Drain source on state resistance

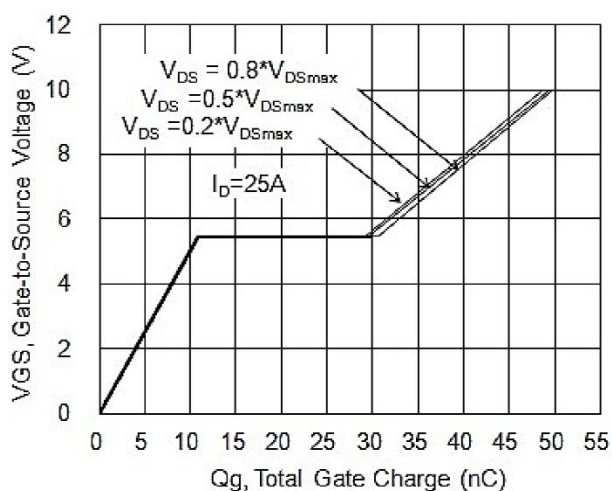


Figure3: Gate charge characteristics

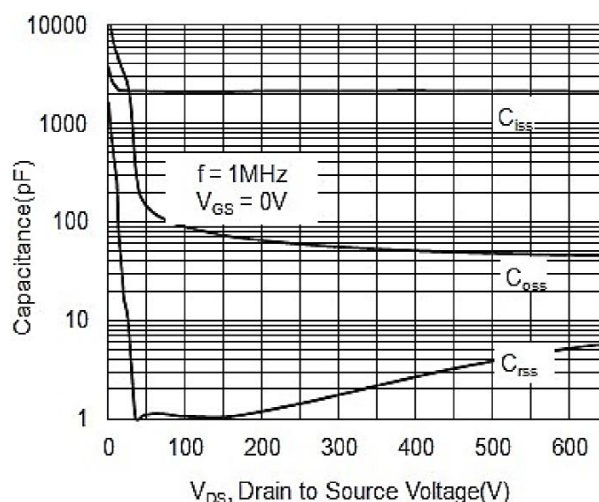


Figure4: Capacitance Characteristics

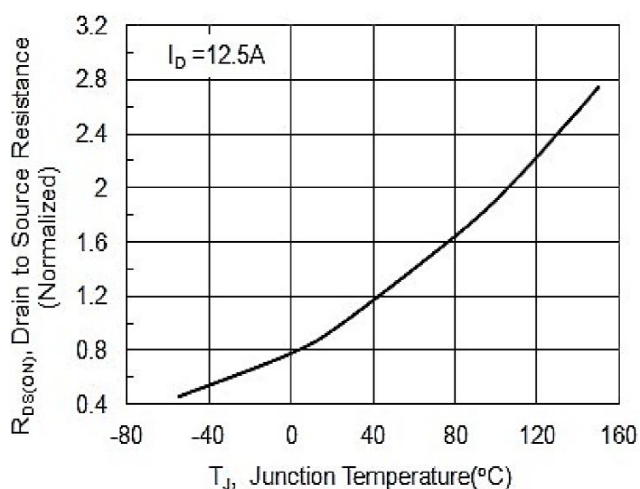


Figure5: Rds (on) Vs junction temperature

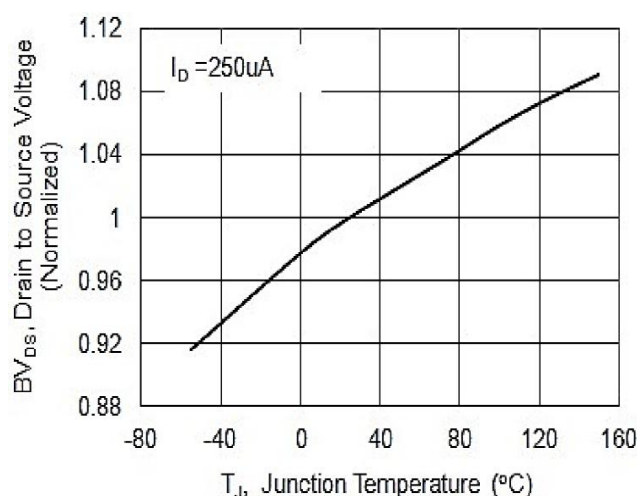


Figure6: Bvdss vs junction temperature

Typical Characteristics

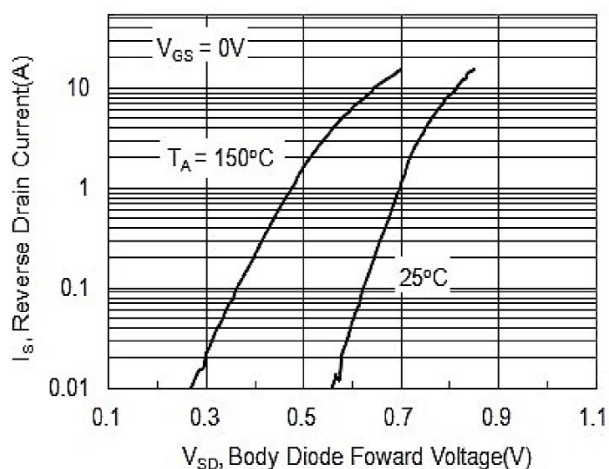


Figure7:VGS (th) vs junction temperature

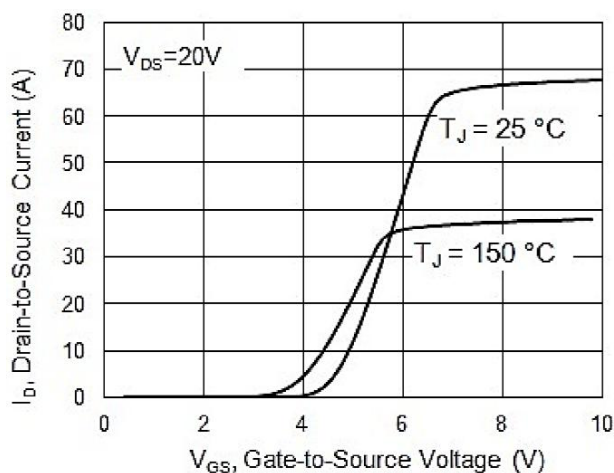


Figure8: Transfer characteristics

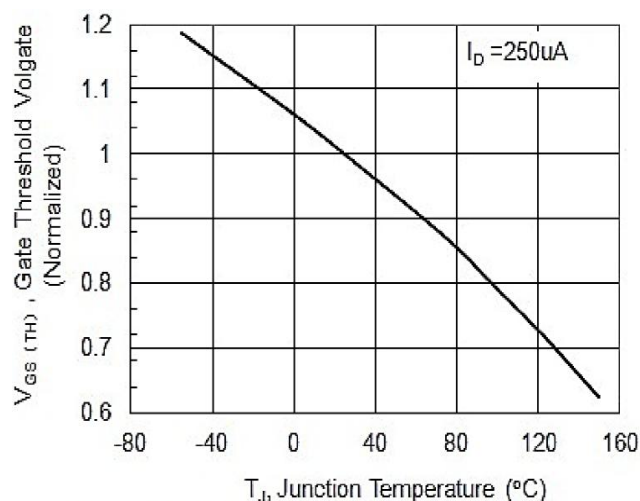


Figure9: VGS (th) vs junction temperature

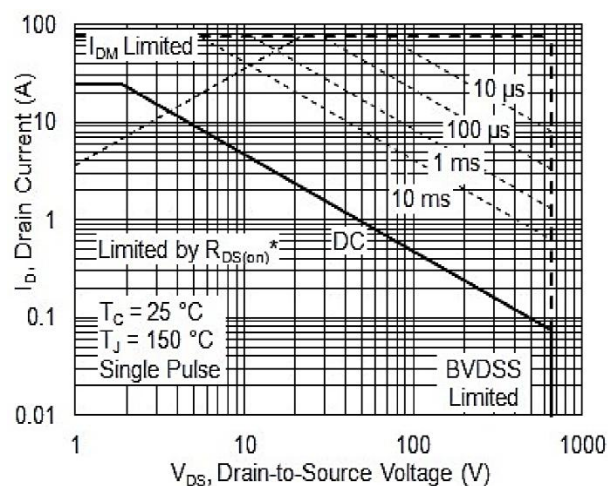


Figure10: Safe operating area

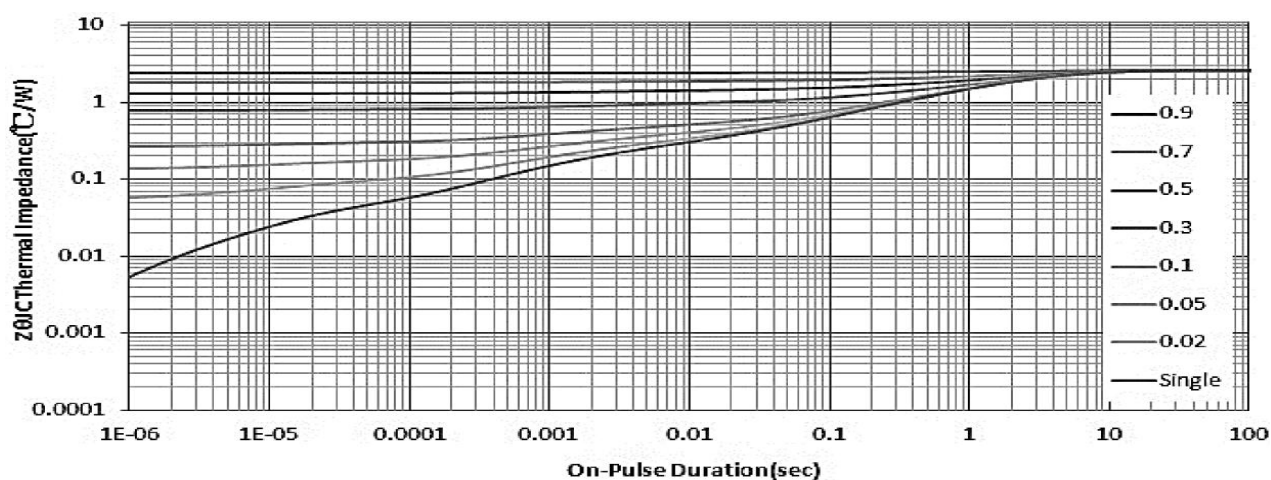
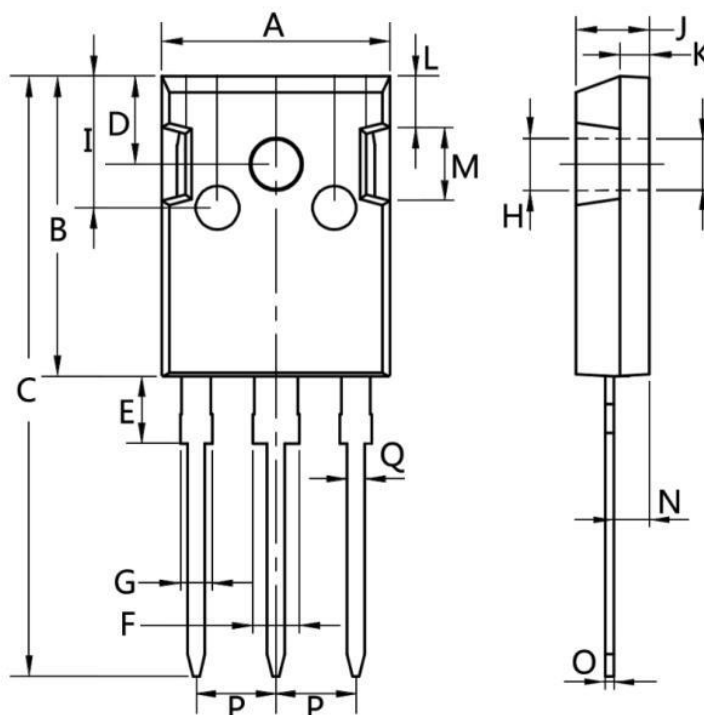


Figure11: Transient thermal impedance

TO-247AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	15.000	16.000	0.591	0.630
B	20.000	21.000	0.787	0.827
C	41.000	42.000	1.614	1.654
D	5.000	6.000	0.197	0.236
E	4.000	5.000	0.157	0.197
F	2.500	3.500	0.098	0.138
G	1.750	2.500	0.069	0.098
H	3.000	3.500	0.118	0.138
I	8.000	10.000	0.315	0.394
J	4.900	5.100	0.193	0.201
K	1.900	2.100	0.075	0.083
L	3.500	4.000	0.138	0.157
M	4.750	5.250	0.187	0.207
N	2.000	3.000	0.079	0.118
O	0.550	0.750	0.022	0.030
P	5.440 BSC.		0.214 BSC.	
Q	1.200	1.300	0.047	0.051