

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-100V	185mΩ@-10V	-15A
	200mΩ@-4.5V	

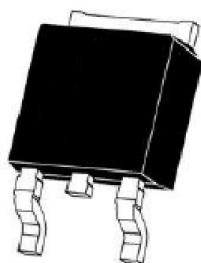
Feature

- High density cell design for ultra low $R_{DS(on)}$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation

Application

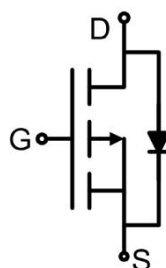
- High side switch for full bridge converter
- DC/DC converters for LCD display

Package

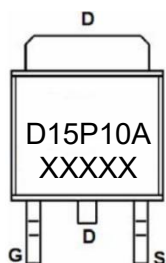


TO-252AB

Circuit diagram



Marking



Absolute maximum ratings (T_c=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-100	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current ¹⁾	I _D	-15	A
Continuous Drain Current ¹⁾ (T _c =100°C)	I _D (100°C)	-12	A
Pulsed Drain Current ²⁾	I _{DM}	-45	A
Power Dissipation ⁴⁾	P _D	50	W
Avalanche energy ³⁾	E _{AS}	56	mJ
Thermal Resistance, Junction-to-Case ¹⁾	R _{θJC}	2.5	°C/W
Junction Temperature	T _J	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	-100			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-80V,V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.0		-2.5	V
Drain-source on-resistance ¹⁾	R _{DS(on)}	V _{GS} =-10V, I _D =-2A		145	185	mΩ
		V _{GS} =-4.5V, I _D =-1A		170	200	
Dynamic characteristics ⁵⁾						
Input Capacitance	C _{iss}	V _{DS} =-50,V _{GS} =0V,f =1MHz		1545		pF
Output Capacitance	C _{oss}			37		
Reverse Transfer Capacitance	C _{rss}			25		
Total Gate Charge	Q _g	V _{DD} =-50V,V _{GS} =-10V, I _D =-2A		27		nC
Gate-Source Charge	Q _{gs}			5.3		
Gate-Drain Charge	Q _{gd}			3.2		
Turn-on delay time	t _{d(on)}	V _{DS} =-50V,I _D =-2A, R _G =4.5Ω,R _L =25Ω, V _{GEN} =-10V		10		nS
Turn-on rise time	t _r			27		
Turn-off delay time	t _{d(off)}			288		
Turn-off fall time	t _f			88		
Source-Drain Diode characteristics						
Diode Forward voltage ¹⁾	V _{SD}	V _{GS} =0V, I _S =-2A			-1.3	V
Diode Forward Current	I _S				-15	A
Reverse Recovery Time	t _{rr}	V _{GS} =0V,I _{sd} =-6A, di/dt=100A/μs		40		nS
Reverse Recovery Charge	Q _{rr}			28		nC

Notes:

- 1) The data tested by surface mounted on a 1 inch 2 FR-4 board with 20Z copper.
- 2) The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%
- 3) The EAS data shows Max. rating. The test condition is V_{DD} = -72V, V_{GS} = -10V, L = 0.1mH, I_{AS} = -15A
- 4) The power dissipation is limited by 150°C junction temperature
- 5) Guaranteed by design, not subject to production

Typical Characteristics

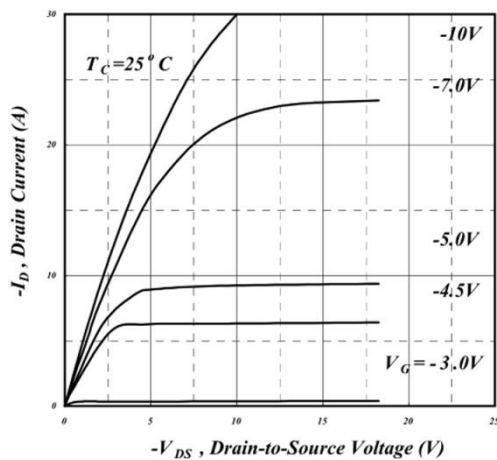


Fig 1. Typical Output Characteristics

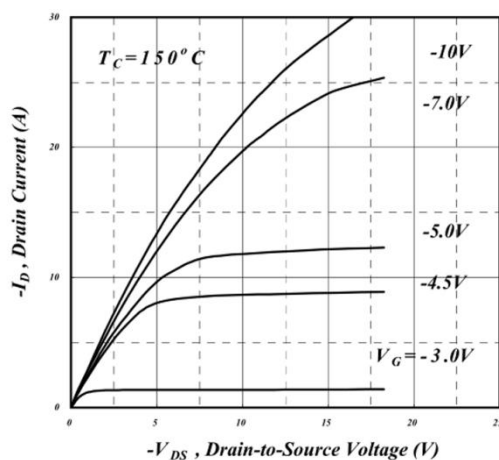


Fig 2. Typical Output Characteristics

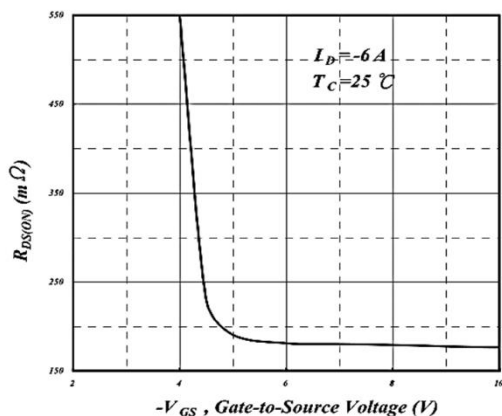


Fig 3. On-Resistance v.s. Gate Voltage

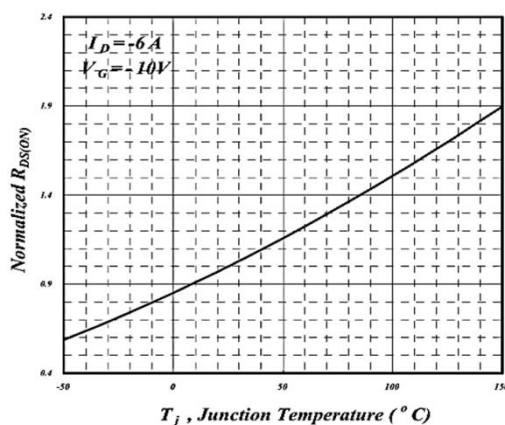


Fig 4. Normalized On-Resistance v.s. Junction Temperature

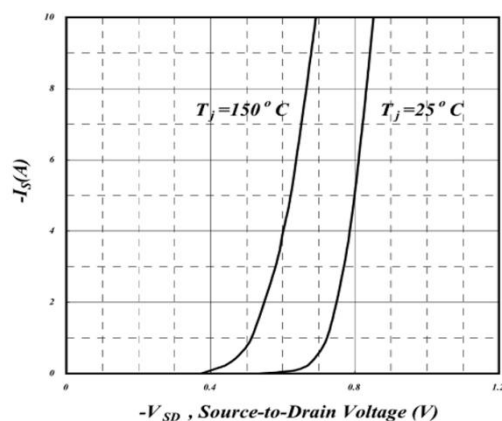


Fig 5. Forward Characteristic of Reverse Diode

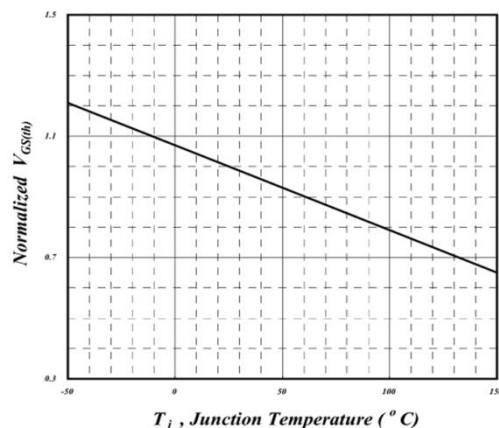


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

Typical Characteristics

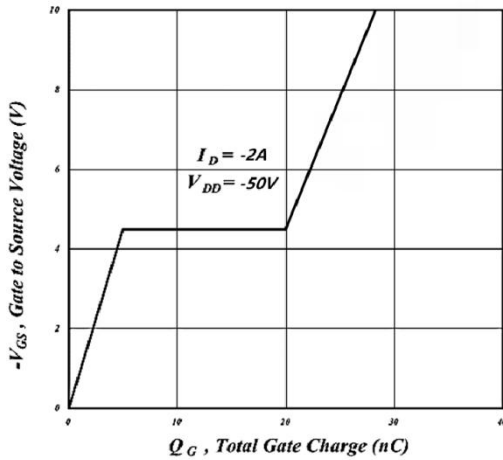


Fig 7. Gate Charge Characteristics

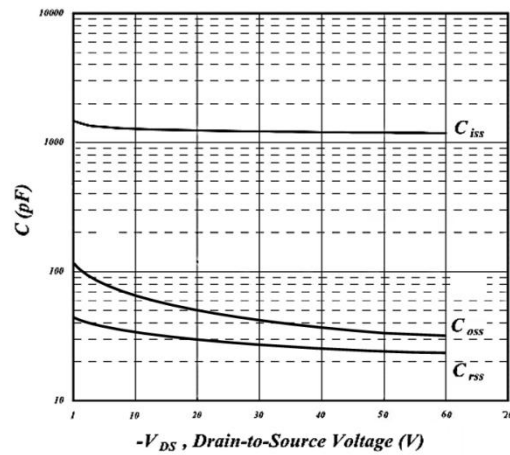


Fig 8. Typical Capacitance Characteristics

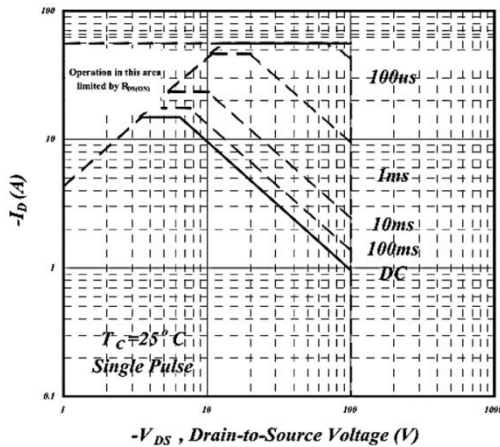


Fig 9. Maximum Safe Operating Area

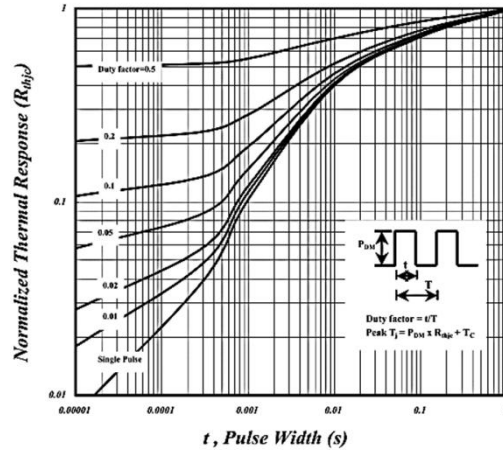


Fig 10. Effective Transient Thermal Impedance

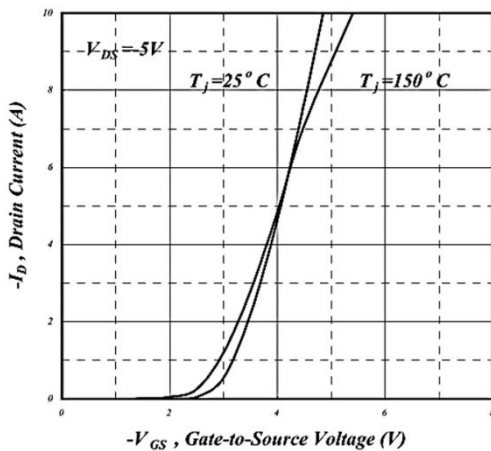


Fig 11. Transfer Characteristics

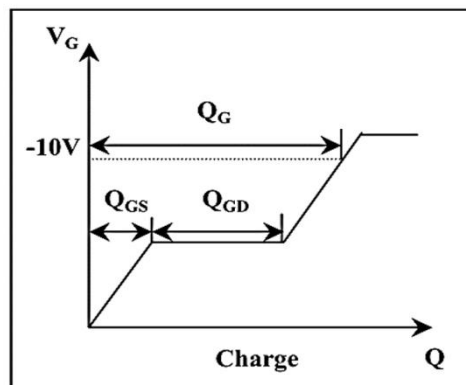
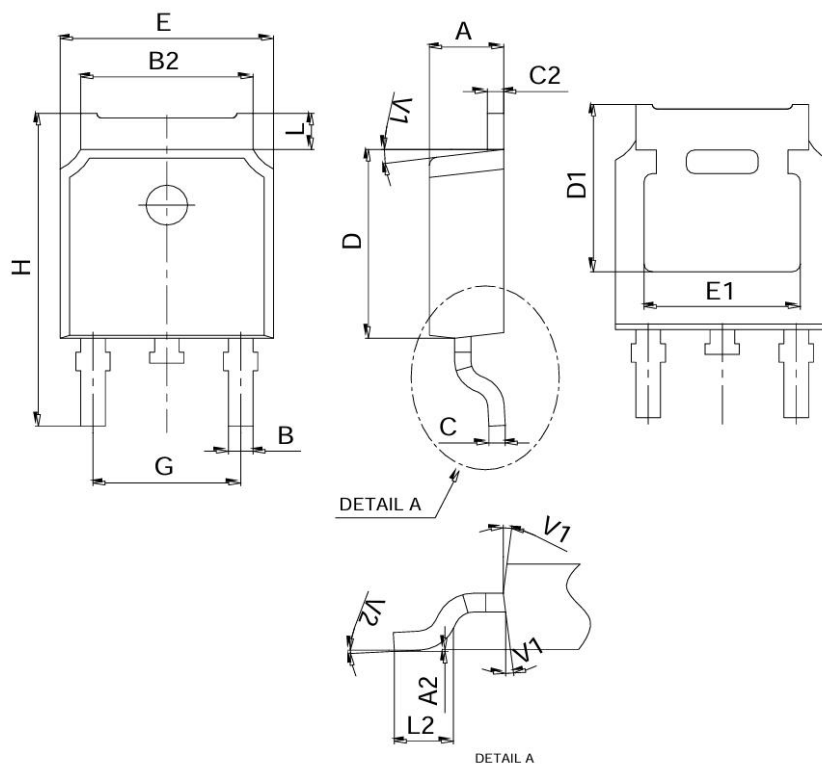


Fig 12. Gate Charge Waveform

TO-252AB Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.100	2.500	0.083	0.098
A2	0.000	0.100	0.000	0.004
B	0.660	0.860	0.026	0.034
B2	5.180	5.480	0.202	0.216
C	0.400	0.600	0.016	0.024
C2	0.440	0.580	0.017	0.023
D	5.900	6.300	0.232	0.248
D1	5.300 REF.		0.209 REF.	
E	6.400	6.800	0.252	0.268
E1	4.630	-	0.182	-
G	4.470	4.670	0.176	0.184
H	9.500	10.700	0.374	0.421
L	1.090	1.210	0.043	0.048
L2	1.350	1.650	0.053	0.065
V1	7°		7°	
V2	0°	6°	0°	6°