

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
150V	52mΩ@10V	30A
	70mΩ@4.5V	

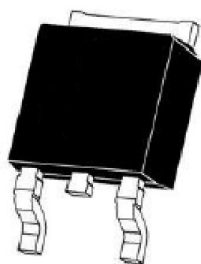
Feature

- Advanced trench technology
- Excellent $R_{DS(on)}$
- Low gate charge

Application

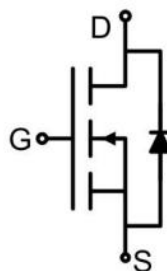
- Battery protection
- Load Switch
- Uninterruptible power supply

Package

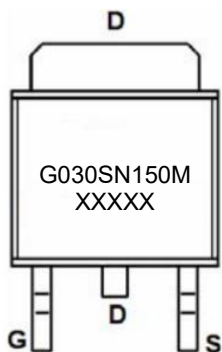


TO-252AB

Circuit diagram



Marking



Absolute maximum ratings ($T_c=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹⁾	I_D	30	A
Continuous Drain Current ¹⁾ ($T_c=100^{\circ}\text{C}$)	$I_D(100^{\circ}\text{C})$	16	A
Pulsed Drain Current ²⁾	I_{DM}	60	A
Power Dissipation ³⁾	P_D	72.6	W
Thermal Resistance, Junction-to-Case ¹⁾	$R_{\theta JC}$	2	$^{\circ}\text{C}/\text{W}$
Junction Temperature	T_J	175	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +175	$^{\circ}\text{C}$

Electrical characteristics ($T_J=25^{\circ}\text{C}$ 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	150			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =120V,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	1.2	1.8	2.5	V
Drain-source on-resistance ²⁾	R _{DS(on)}	V _{GS} =10V, I _D =20A		43	52	mΩ
		V _{GS} =4.5V,I _D =10A		45	70	
Dynamic characteristics ⁵⁾						
Input Capacitance	C _{iss}	V _{DS} =75V,V _{GS} =0V, f=1MHz		1190		pF
Output Capacitance	C _{oss}			73		
Reverse Transfer Capacitance	C _{rss}			4		
Total Gate Charge	Q _g	V _{DS} =75V,V _{GS} =10V, I _D =10A		23		nC
Gate-Source Charge	Q _{gs}			5.8		
Gate-Drain Charge	Q _{gd}			4.2		
Turn-on delay time	t _{d(on)}	V _{DD} =75V,V _{GS} =10V, R _G =3.3Ω,I _D =10A		16.2		nS
Turn-on rise time	t _r			18.6		
Turn-off delay time	t _{d(off)}			28.5		
Turn-off fall time	t _f			6.5		
Source-Drain Diode characteristics						
Diode Forward Current ^{1,4)}	I _S	V _G =V _D =0V,Force Current			20	A
Diode Forward voltage ²⁾	V _{SD}	V _{GS} =0V,I _S =1A			1.2	V
Reverse Recovery Time	t _{rr}	I _F =10A, di/dt= 100A/μs		45		nS
Reverse Recovery Charge	Q _{rr}			138		nC

Notes:

- 1) The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
- 2) The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 3) The power dissipation is limited by 150 $^{\circ}\text{C}$ junction temperature.
- 4) The data is theoretically the same as I_D and I_{DM} , in real applications, should be limited by total power dissipation.
- 5) Guaranteed by design, not subject to production testing.

Typical Characteristics

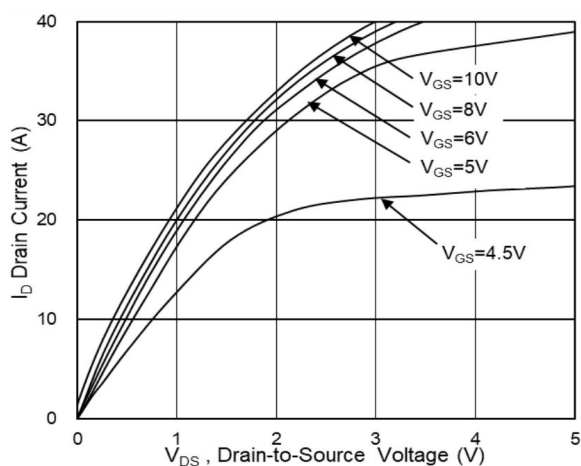


Fig.1 Typical Output Characteristics

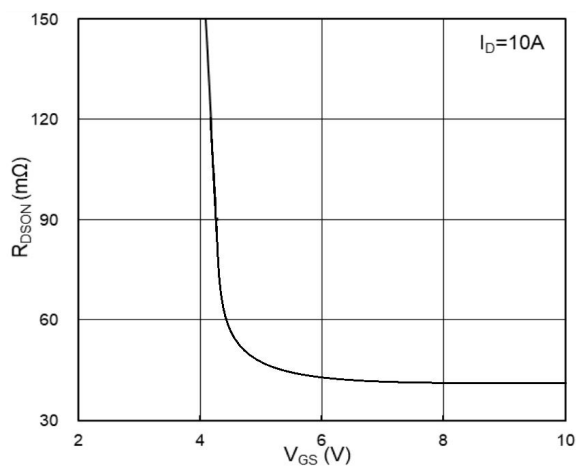


Fig.2 On-Resistance vs G-S Voltage

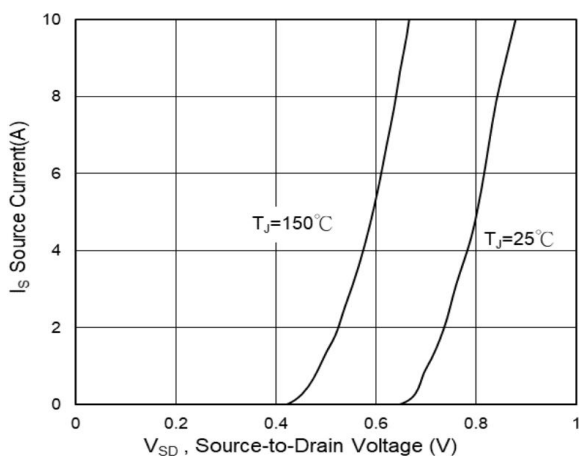


Fig.3 Source Drain Forward Characteristics

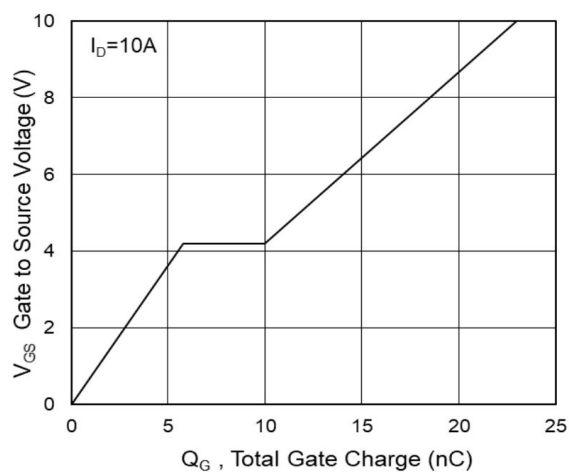


Fig.4 Gate-Charge Characteristics

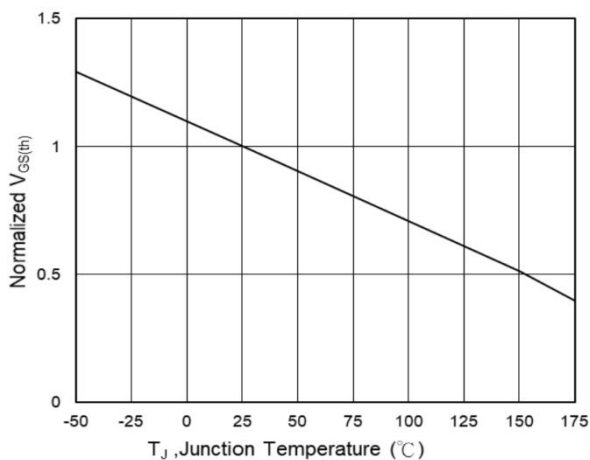


Fig.5 Normalized $V_{GS(th)}$ vs T_J

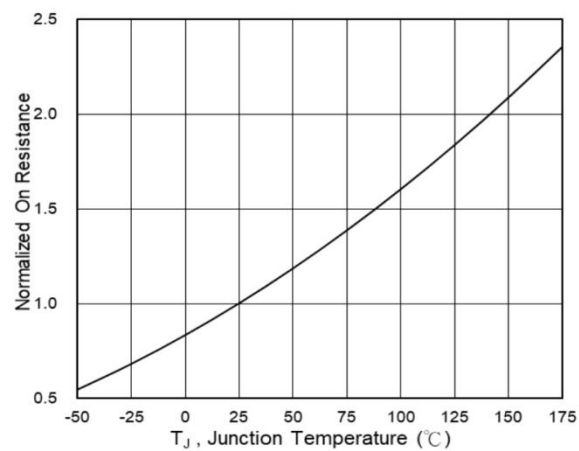
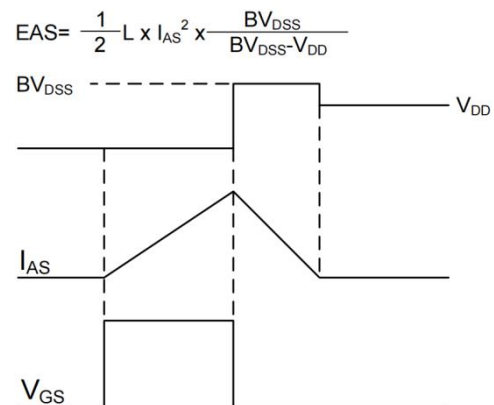
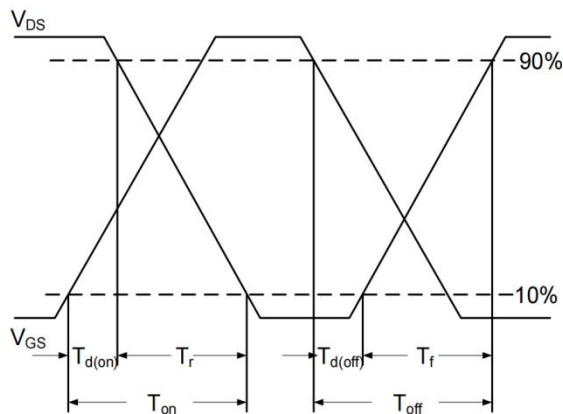
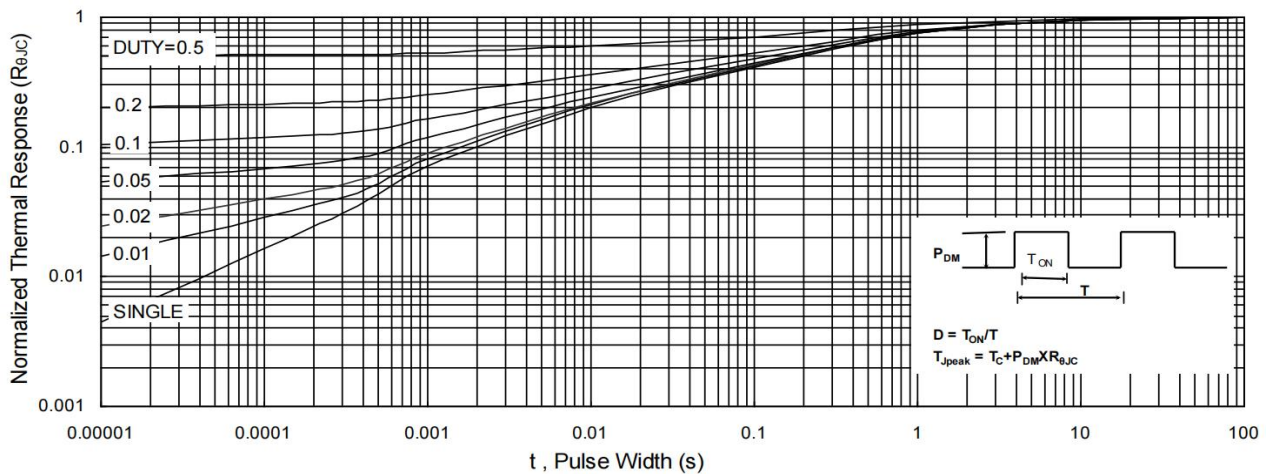
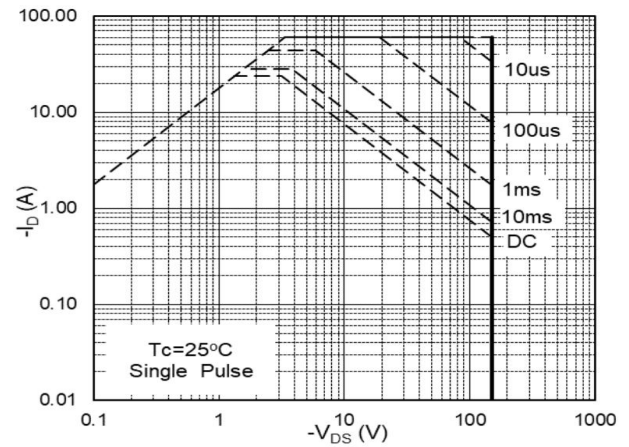
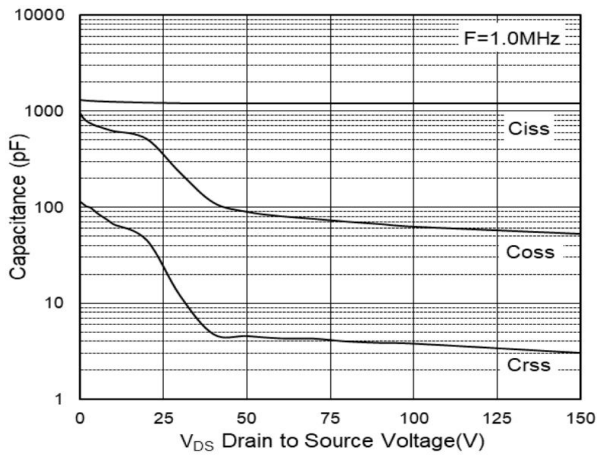
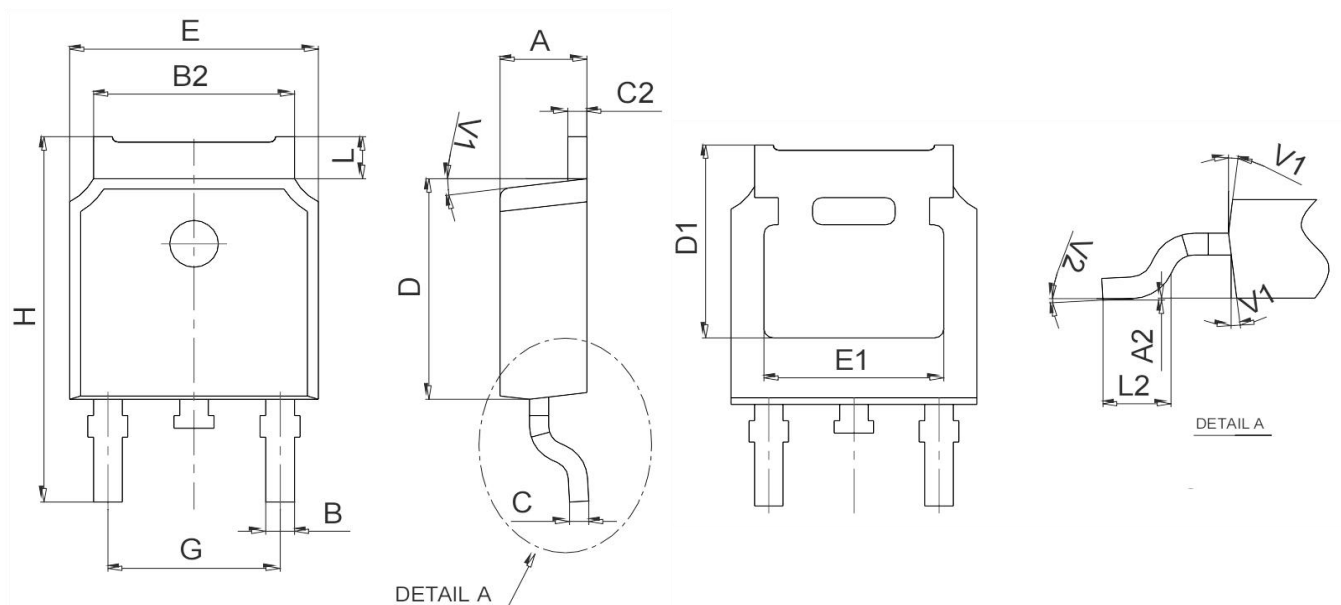


Fig.6 Normalized $R_{DS(on)}$ vs T_J

Typical Characteristics



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° BSC.		7° BSC.	
V2	0°	6°	0°	8°