Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
650V	3.8Ω@10V	2A

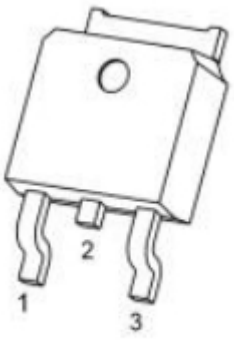
Feature

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

Application

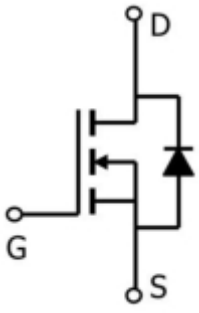
- DC-DC Converter
- Ideal for high-frequency switching and synchronous rectification

Package

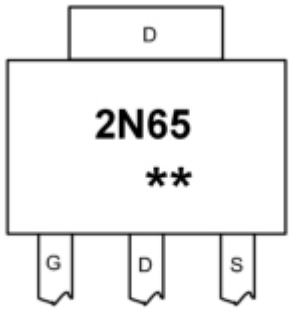


TO-252(G:1 D:2 S:3)

Circuit diagram



Marking



2N65 =Device Code
** =Week Code

Absolute maximum ratings

(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current[1] (T_C =25℃)	I_D	2	A
Pulsed Drain Current[2]	I_{DM}	8	A
Single Pulse Avalanche Energy[3]	E_{AS}	140	mJ
Total Power Dissipation(T_C =25℃)	P_D	44	W
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	2.84	℃/ W
Storage Temperature Range	T_{STG}	-55~ +150	℃
Operating Junction Temperature Range	T_J	-55~ +150	℃

Electrical characteristics

(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS} = 0V, I_D =250μA	650			V
Bvdss Temperature Coefficient	ΔBVDSS/ΔTJ	I_D=250uA,Reference25℃		0.4		V/℃
Drain-Source Leakage Current	I_{DSS}	V_{DS} =520V,V_{GS} = 0V T_J =25℃			10	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS} =±30V, V_{DS} = 0V			±100	uA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2	3	4	V
Static Drain-Source on-Resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =1A		3.8	4.8	Ω
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V, f=1MHz		270		pF
Output Capacitance	C_{oss}			41		
Reverse Transfer Capacitance	C_{rss}			5		
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS}=480V, V_{GS}=10V, I_D=2A		9		nC
Gate-Source Charge	Q_{gS}			1.7		
Gate-Drain Charge	Q_{gd}			4		
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=300V, V_{GS}=10V, R_G=25 Ω, I_D=2A		11		nS
Rise Time	T_r			25		
Turn-Off Delay Time	$T_{d(off)}$			22		
Fall Time	T_f			24		

Notes:

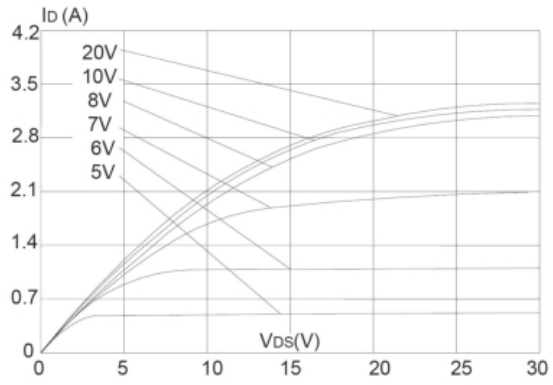
1.The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.

2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

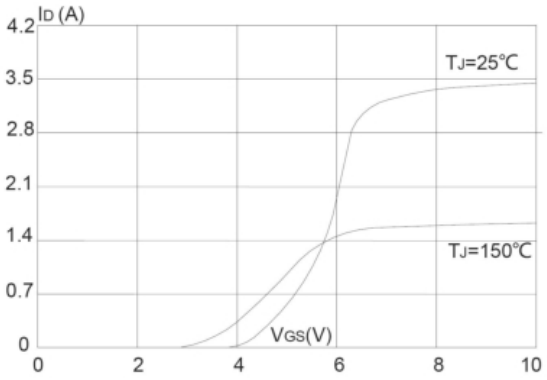
3.The EAS data shows Max. rating . The test condition is R G =25Ω ,L=64mH, V DD =50V

Typical Characteristics

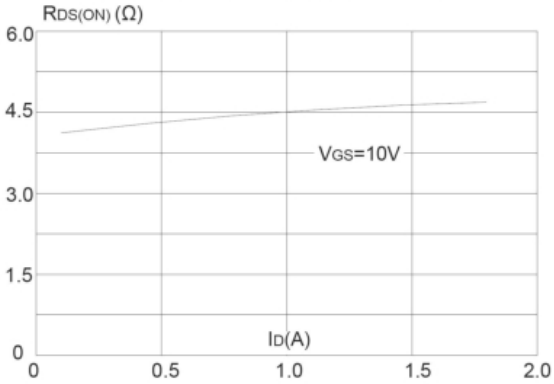
Output Characteristics



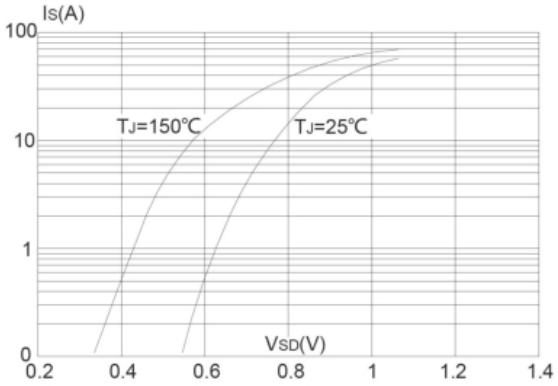
Typical Transfer Characteristics



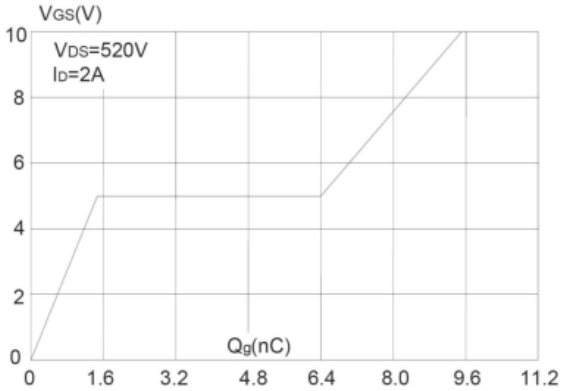
On-resistance vs. Drain Current



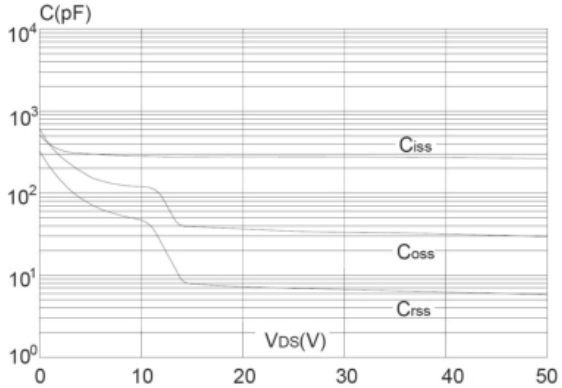
Body Diode Characteristics



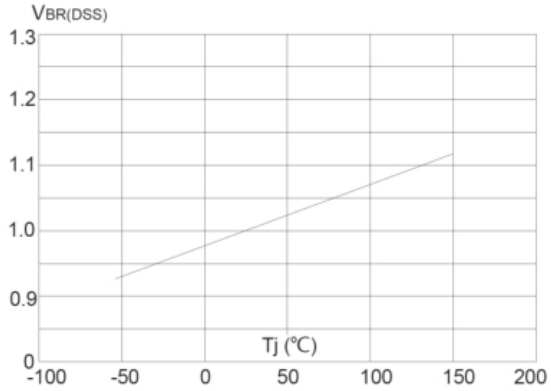
Gate Charge Characteristics



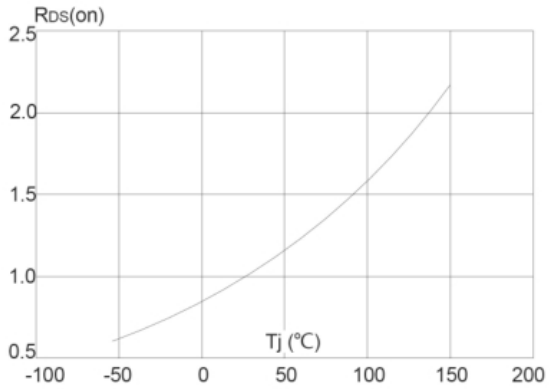
Capacitance Characteristics



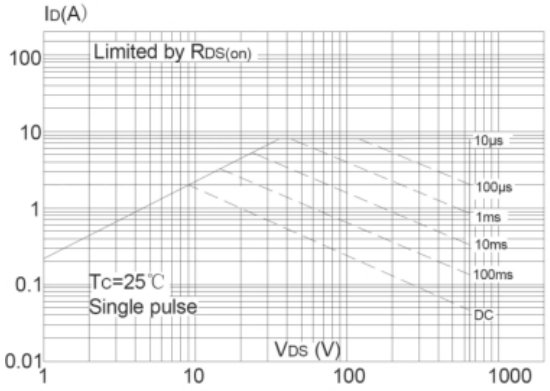
Normalized Breakdown Voltage vs. Junction Temperature



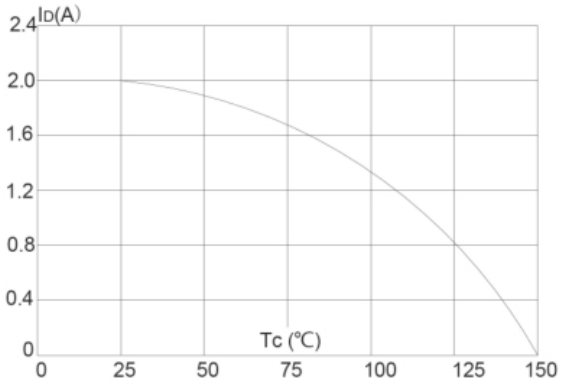
Normalized on Resistance vs. Junction Temperature



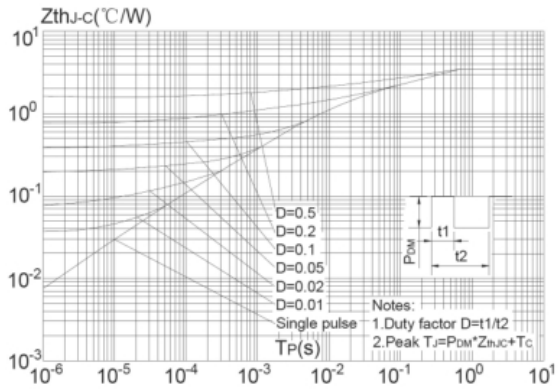
Maximum Safe Operating Area



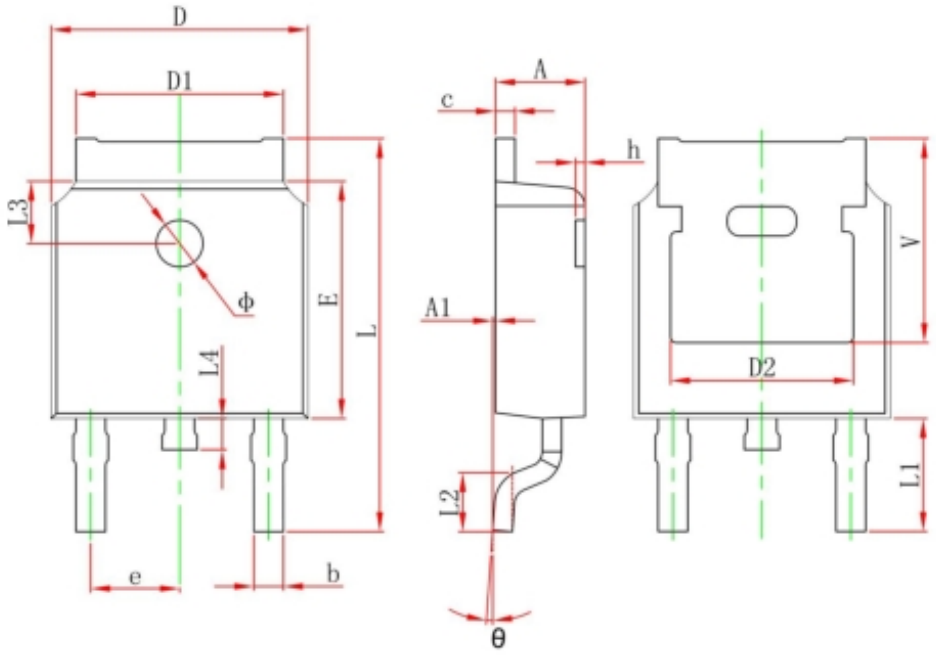
Maximum Continuous Drain Current vs. Case Temperature



Maximum Effective Transient Thermal Impedance, Junction-to-Case



OT-252 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.660	0.860	0.026	0.034
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.350 REF.		0.211 REF.	