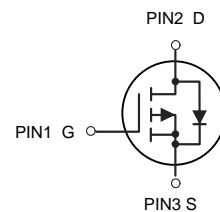


Features

- P-Channel, -5V Logic Level Control
- Low on-resistance RDS(on) @ $V_{GS}=-4.5\text{ V}$
- Fast Switching
- Enhancement mode
- 100% Avalanche Tested
- Pb-free lead plating; RoHS compliant

TO-252



Maximum ratings, at $T_j=25\text{ °C}$, unless otherwise specified

Symbol	Parameter	Rating	Unit
$V_{(BR)DSS}$	Drain-Source breakdown voltage	-100	V
V_{GS}	Gate-Source voltage	± 20	V
I_S	Diode continuous forward current	$T_C=25\text{ °C}$ -35	A
I_D	Continuous drain current @ $V_{GS}=-10\text{ V}$	$T_C=25\text{ °C}$ -35	A
		$T_C=100\text{ °C}$ -25	A
I_{DM}	Pulse drain current tested ①	$T_C=25\text{ °C}$ -140	A
EAS	Avalanche energy, single pulsed ②	197	mJ
P_D	Maximum power dissipation	$T_C=25\text{ °C}$ 100	W
T_{STG}, T_J	Storage and Junction Temperature Range	-55 to 175	°C
Thermal Characteristics			
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	1.5	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	100	°C/W

Electrical Characteristics

Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250μA	-100	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-100V, V _{GS} =0V	--	--	-1	μA
	Zero Gate Voltage Drain Current(T _J =125°C)	V _{DS} =-100V, V _{GS} =0V	--	--	-100	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-1.3	-2	-2.4	V
R _{DS(ON)}	Drain-Source On-State Resistance ③	V _{GS} =-10V, I _D =-30A	--	46	53	mΩ
R _{DS(ON)}	Drain-Source On-State Resistance ③	V _{GS} =-4.5V, I _D =-15A	--	51	59	mΩ
Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =-30V, V _{GS} =0V, f=1MHz	4400	4585	4800	pF
C _{oss}	Output Capacitance		110	180	250	pF
C _{rss}	Reverse Transfer Capacitance		80	105	130	pF
R _g	Gate Resistance	f=1MHz	--	11	--	Ω
Q _g	Total Gate Charge	V _{DS} =-50V, I _D =-30A, V _{GS} =-10V	--	71	--	nC
Q _{gs}	Gate-Source Charge		--	22	--	nC
Q _{gd}	Gate-Drain Charge		--	24	--	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} =-50V, I _D =-30A, R _G =3.0Ω, V _{GS} =-10V	--	23	--	ns
t _r	Turn-on Rise Time		--	17	--	ns
t _{d(off)}	Turn-Off Delay Time		--	40	--	ns
t _f	Turn-Off Fall Time		--	14	--	ns
Source- Drain Diode Characteristics @ T_J = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage	I _{SD} =-30A, V _{GS} =0V	--	-0.9	-1.2	V
t _{rr}	Reverse Recovery Time	T _J =25°C, I _{sd} =-30A, V _{GS} =0V	--	29	--	ns
Q _{rr}	Reverse Recovery Charge	di/dt=-500A/μs	--	131	--	nC

NOTE:

① Repetitive rating; pulse width limited by max junction temperature.

② Limited by T_{Jmax}, starting T_J = 25°C, L = 0.5mH, R_G = 25Ω, I_{AS} = -22A, V_{GS} = -10V. Part not recommended for use above this value

③ Pulse width ≤ 300μs; duty cycles ≤ 2%.

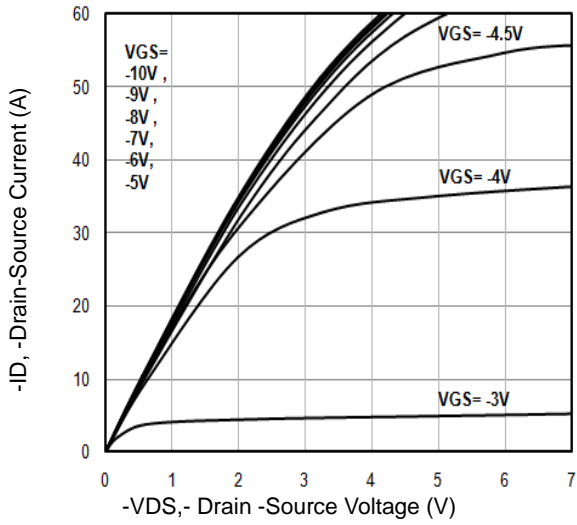


Fig1. Typical Output Characteristics

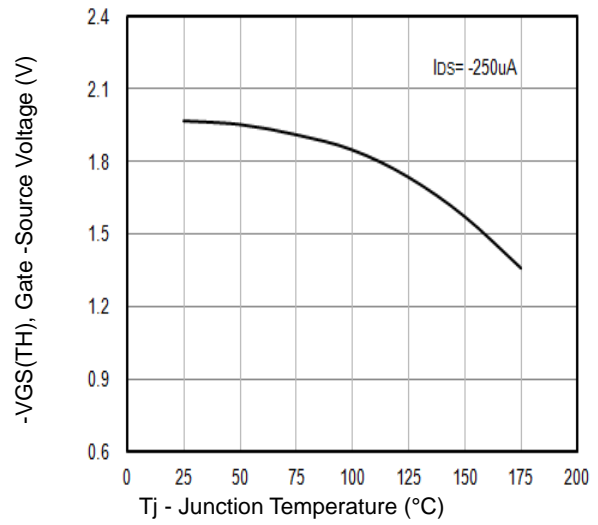


Fig2. $-V_{GS(TH)}$ Gate -Source Voltage Vs. T_j

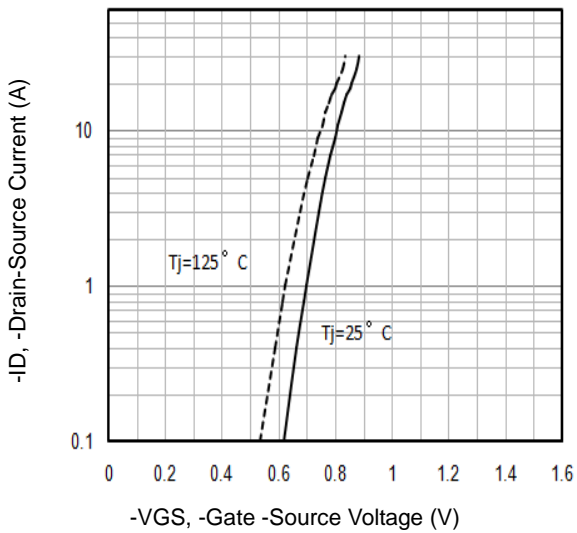


Fig3. Typical Transfer Characteristics

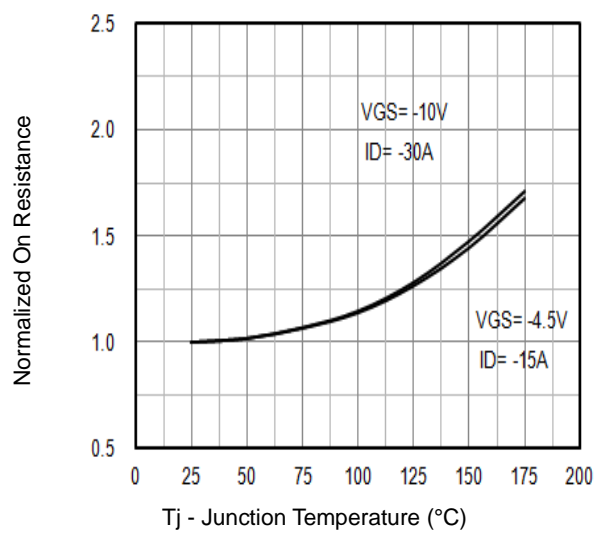


Fig4. Normalized On-Resistance Vs. T_j

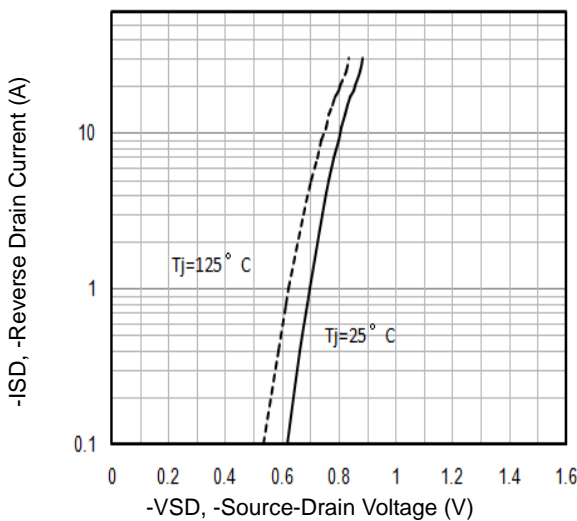


Fig5. Typical Source-Drain Diode Forward Voltage

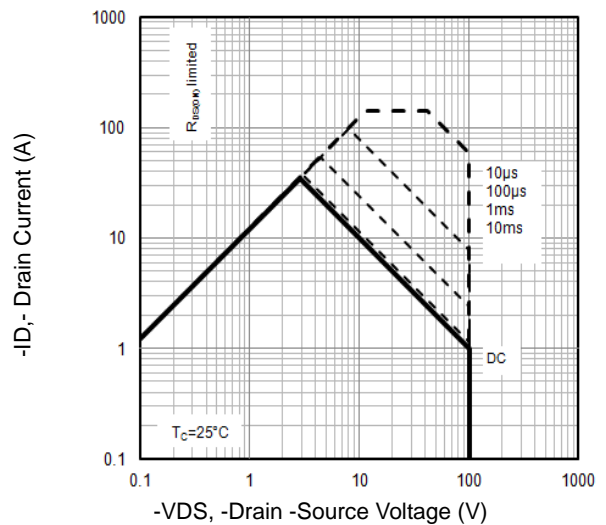


Fig6. Maximum Safe Operating Area

Typical Characteristics

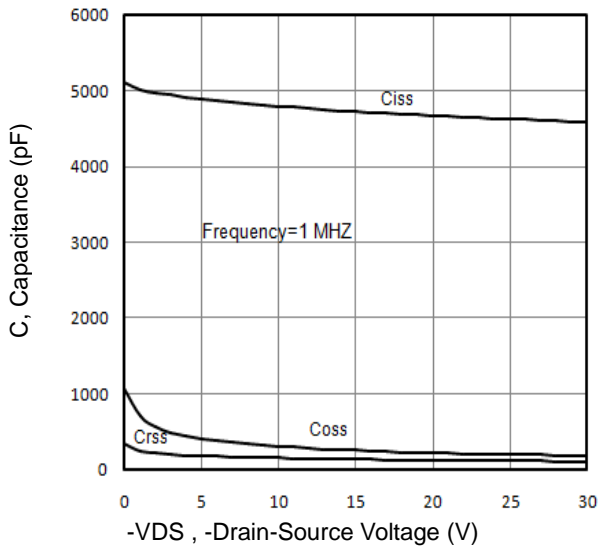


Fig7. Typical Capacitance Vs.Drain-Source Voltage

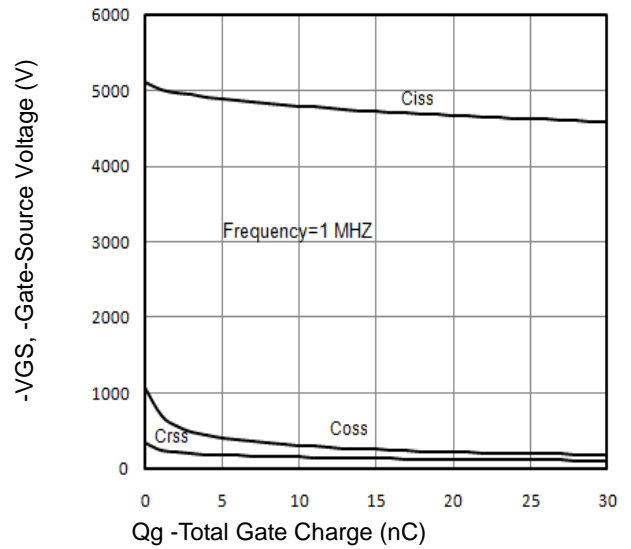


Fig8. Typical Gate Charge Vs.Gate-Source Voltage

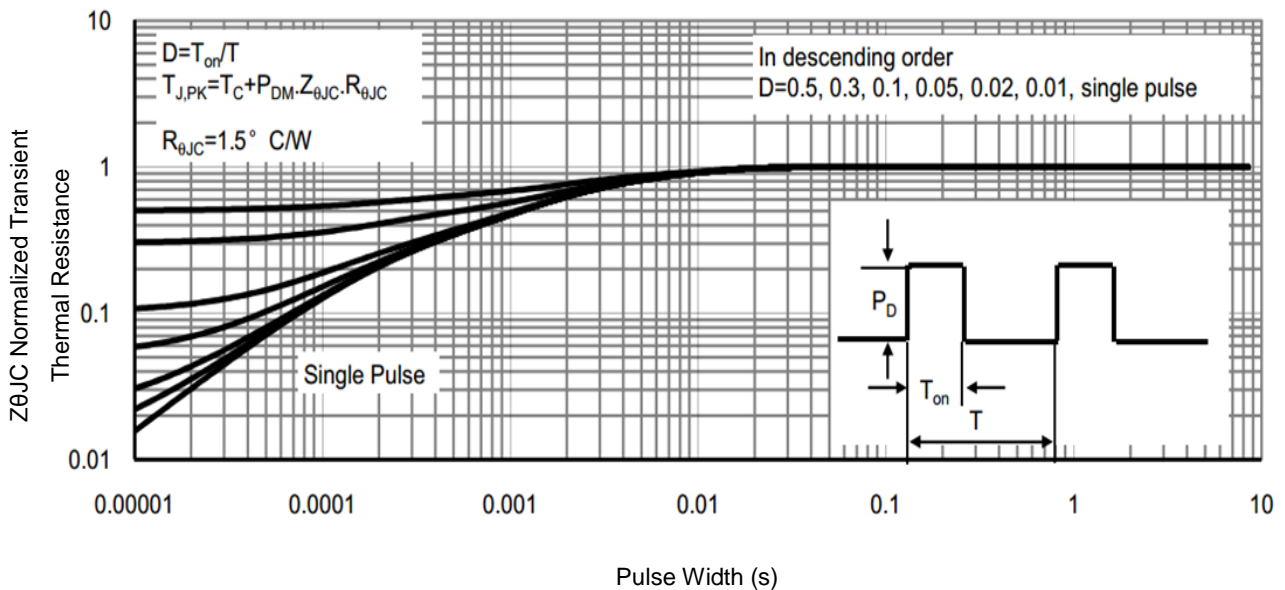


Fig9. Normalized Maximum Transient Thermal Impedance

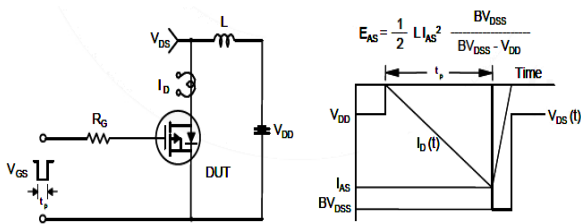


Fig10. Unclamped Inductive Test Circuit and Waveforms

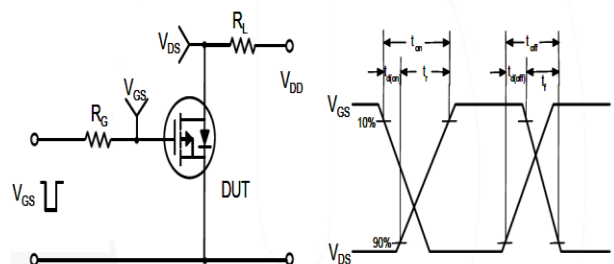


Fig11. Switching Time Test Circuit and waveforms

TO252 Package Dimensions

6\PERO	'LPHQVLRQV, Q, QFKHY		'LPHQVLRQV, Q, QFKHY	
	0LQ	0D[0LQ	0D[
\$				
\$				
E				
F				
'				
'				
'	7<3		7<3	
(
H				
/				
/	7<3		7<3	
/				
/	7<3		7<3	
/				
-				
	e	e	e	e
K				
9	7<3		7<3	