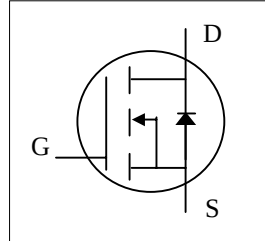




- ▼ 100% Avalanche Test
- ▼ Fast Switching Characteristics
- ▼ Simple Drive Requirement
- ▼ RoHS Compliant & Halogen-Free

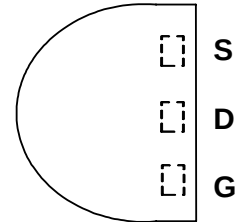


BV_{DSS}	700V
$R_{DS(ON)}$	9 Ω
I_D	0.3A

Description

Advanced Power MOSFETs utilized advanced processing techniques to achieve the lowest possible on-resistance, extremely efficient and cost-effectiveness device.

The TO-92 package is widely used for commercial-industrial applications.



TO-92
Top View

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	700	V
V_{GS}	Gate-Source Voltage	± 30	V
$I_D@T_L=25^{\circ}C$	Continuous Drain Current, V_{GS} @ 10V	0.3	A
I_{DM}	Pulsed Drain Current ¹	1.2	A
$P_D@T_L=25^{\circ}C$	Total Power Dissipation	2	W
E_{AS}	Single Pulse Avalanche Energy ³	25	mJ
T_{STG}	Storage Temperature Range	-55 to 150	$^{\circ}C$
T_J	Operating Junction Temperature Range	-55 to 150	$^{\circ}C$

Thermal Data

Symbol	Parameter	Value	Units
Rthj-a	Maximum Thermal Resistance, Junction-ambient	150	$^{\circ}C/W$
Rthj-l	Maximum Thermal Resistance, Junction-lead	60	$^{\circ}C/W$

Electrical Characteristics@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	700	-	-	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =0.3A	-	-	9	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	2	-	4	V
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =1A	-	0.2	-	S
I _{DSS}	Drain-Source Leakage Current	V _{DS} =600V, V _{GS} =0V	-	-	25	uA
I _{GSS}	Gate-Source Leakage	V _{GS} =±30V, V _{DS} =0V	-	-	±100	nA
Q _g	Total Gate Charge ²	I _D =1A	-	14	22	nC
Q _{gs}	Gate-Source Charge	V _{DS} =480V	-	2	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =10V	-	8.5	-	nC
t _{d(on)}	Turn-on Delay Time ²	V _{DD} =300V	-	9.5	-	ns
t _r	Rise Time	I _D =1A	-	12	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =10Ω, V _{GS} =10V	-	21	-	ns
t _f	Fall Time	R _D =300Ω	-	9	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	155	240	pF
C _{oss}	Output Capacitance	V _{DS} =25V	-	27	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	14	-	pF

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V _{SD}	Forward On Voltage ²	I _S =0.3A, V _{GS} =0V	-	-	1.5	V
t _{rr}	Reverse Recovery Time ²	I _S =1A, V _{GS} =0V,	-	360	-	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/μs	-	1970	-	nC

Notes:

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse test
- 3.Starting T_j = 25°C , V_{DD} = 50V , L = 10mH , R_G = 25Ω , I_{AS} = 1A.

THIS PRODUCT IS SENSITIVE TO ELECTROSTATIC DISCHARGE, PLEASE HANDLE WITH CAUTION.

USE OF THIS PRODUCT AS A CRITICAL COMPONENT IN LIFE SUPPORT OR OTHER SIMILAR SYSTEMS IS NOT AUTHORIZED.

APEC DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

APEC RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN.

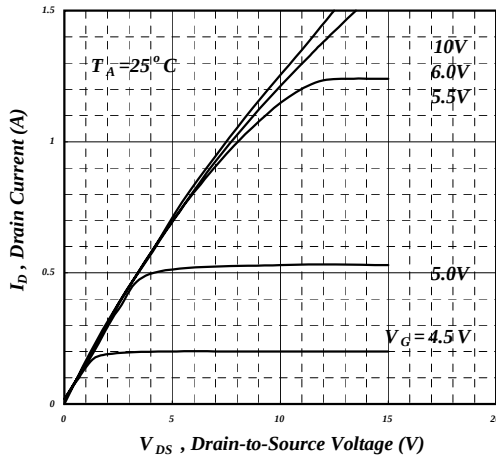


Fig 1. Typical Output Characteristics

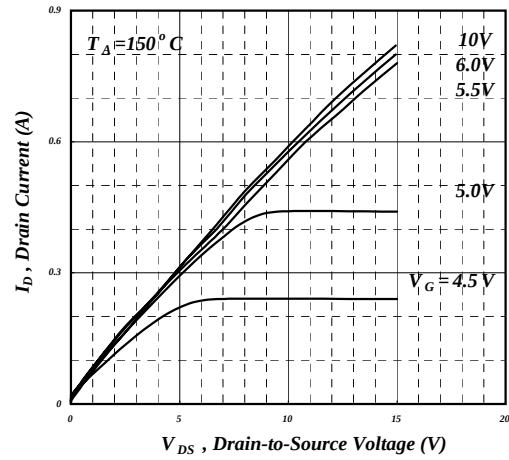


Fig 2. Typical Output Characteristics

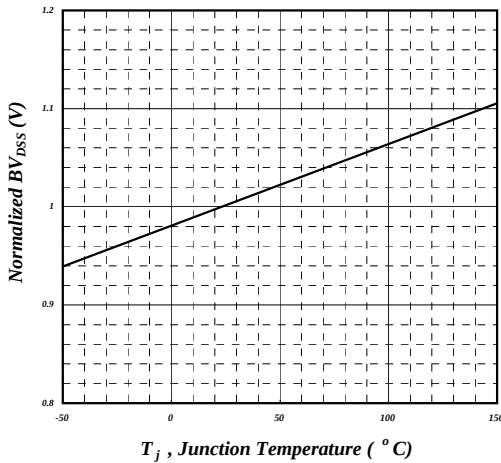


Fig 3. Normalized BV_{DS} v.s. Junction Temperature

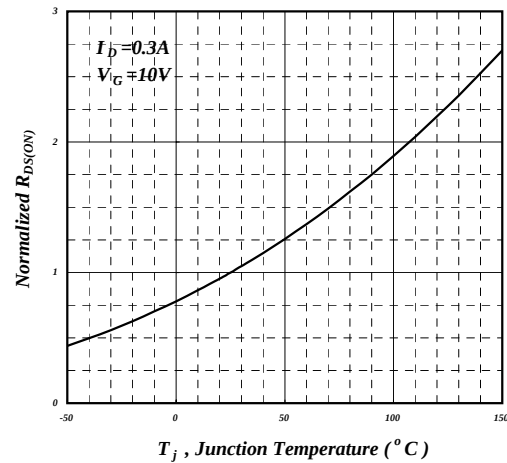


Fig 4. Normalized On-Resistance v.s. Junction Temperature

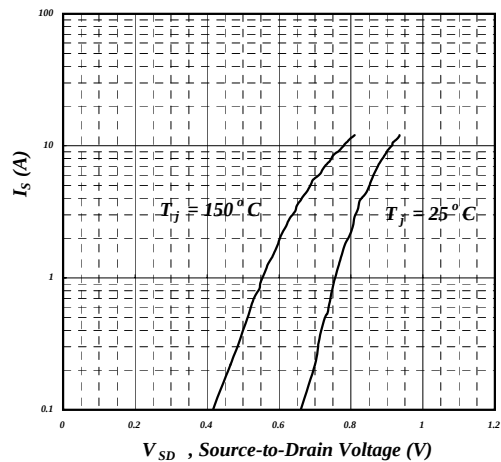


Fig 5. Forward Characteristic of Reverse Diode

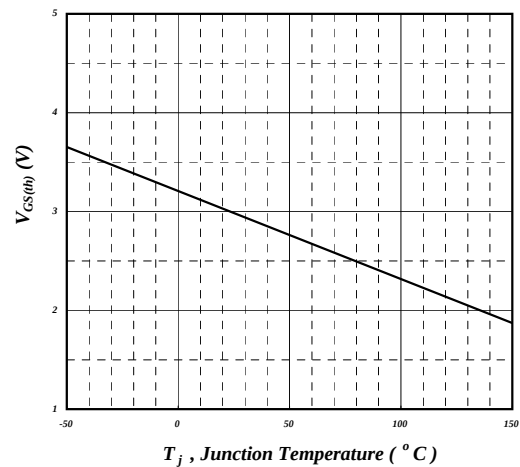


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

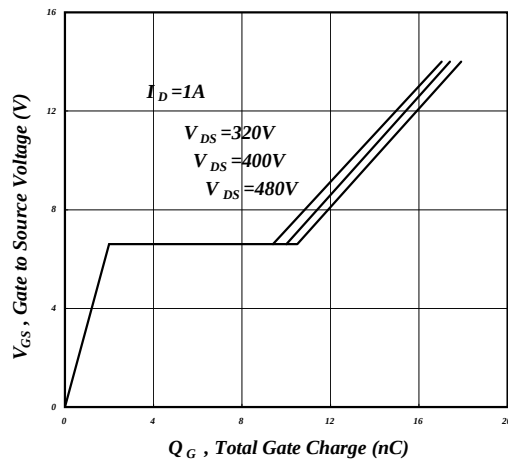


Fig 7. Gate Charge Characteristics

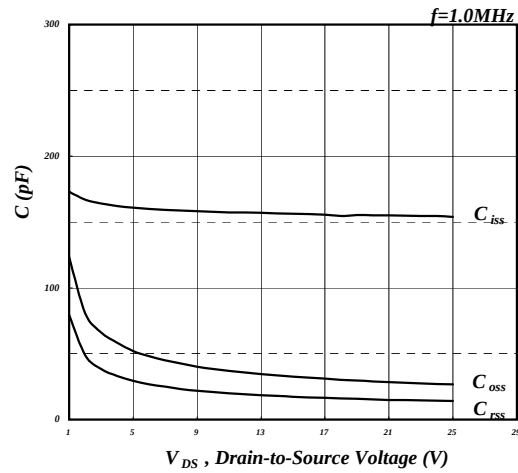


Fig 8. Typical Capacitance Characteristics

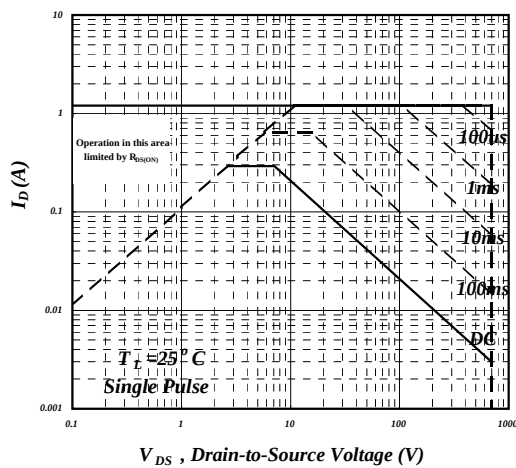


Fig 9. Maximum Safe Operating Area

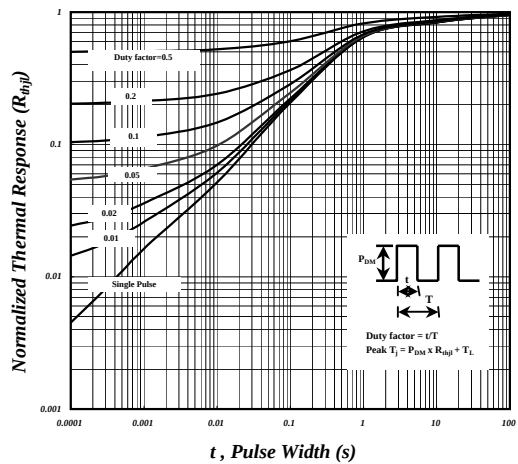


Fig 10. Effective Transient Thermal Impedance

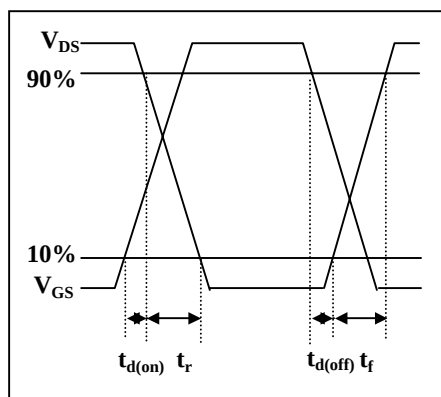


Fig 11. Switching Time Waveform

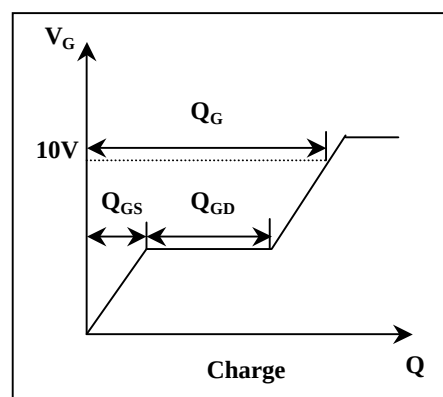


Fig 12. Gate Charge Waveform