



N-channel Enhancement-mode Power MOSFET

Low On-Resistance
Simple Drive Requirement
RoHS-compliant, halogen-free



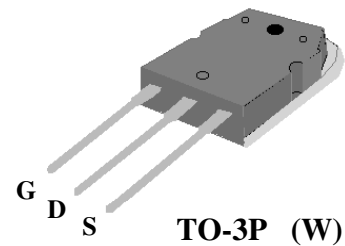
BV_{DS}	100V
$R_{DS(ON)}$	6.4mΩ
I_D	150A

Description

Advanced Power MOSFETs from APEC provide the designer with the best combination of fast switching, low on-resistance and cost-effectiveness.

The AP95T10GW-HF-3 is in the TO-3P through-hole package which is widely used in higher power commercial and industrial applications where an attached heatsink is required.

This device is well suited for use in applications such as motor drives, inverters and DC/DC converters.



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
I_D at $T_C=25^\circ C$	Continuous Drain Current (Silicon Limited)	150	A
I_D at $T_C=100^\circ C$	Continuous Drain Current (Silicon Limited)	108	A
I_D at $T_C=25^\circ C$	Continuous Drain Current (Package Limited)	120	A
I_{DM}	Pulsed Drain Current ¹	600	A
P_D at $T_C=25^\circ C$	Total Power Dissipation	375	W
T_{STG}	Storage Temperature Range	-55 to 175	°C
T_J	Operating Junction Temperature Range	-55 to 175	°C

Thermal Data

Symbol	Parameter	Value	Units
Rthj-c	Maximum Thermal Resistance, Junction-case	0.4	°C/W
Rthj-a	Maximum Thermal Resistance, Junction-ambient	40	°C/W

Ordering Information

AP95T10GW-HF-3TB RoHS-compliant, halogen-free TO-3P, shipped in tubes



Electrical Specifications at $T_j=25^\circ\text{C}$ (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	100	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance ²	$V_{GS}=10V, I_D=60A$	-	-	6.4	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	2	-	4	V
g_{fs}	Forward Transconductance	$V_{DS}=10V, I_D=60A$	-	105	-	S
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=80V, V_{GS}=0V$	-	-	10	μA
I_{GSS}	Gate-Source Leakage	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Q_g	Total Gate Charge ²	$I_D=40A$	-	110	176	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=80V$	-	19	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	$V_{GS}=10V$	-	58	-	nC
$t_{d(on)}$	Turn-on Delay Time ²	$V_{DS}=50V$	-	70	-	ns
t_r	Rise Time	$I_D=40A$	-	210	-	ns
$t_{d(off)}$	Turn-off Delay Time	$R_G=25\Omega$	-	210	-	ns
t_f	Fall Time	$V_{GS}=10V$	-	240	-	ns
C_{iss}	Input Capacitance	$V_{GS}=0V$	-	4330	6930	pF
C_{oss}	Output Capacitance	$V_{DS}=25V$	-	910	-	pF
C_{rss}	Reverse Transfer Capacitance	$f=1.0\text{MHz}$	-	375	-	pF
R_g	Gate Resistance	$f=1.0\text{MHz}$	-	2	-	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage ²	$I_S=40A, V_{GS}=0V$	-	-	1.3	V
t_{rr}	Reverse Recovery Time ²	$I_S=40A, V_{GS}=0V$	-	105	-	ns
Q_{rr}	Reverse Recovery Charge	$di/dt=100A/\mu s$	-	365	-	nC

Notes:

1. Pulse width limited by maximum junction temperature.
2. Pulse test

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.

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Typical Electrical Characteristics

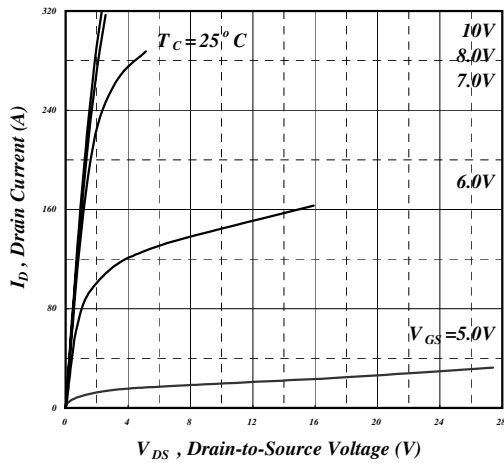


Fig 1. Typical Output Characteristics

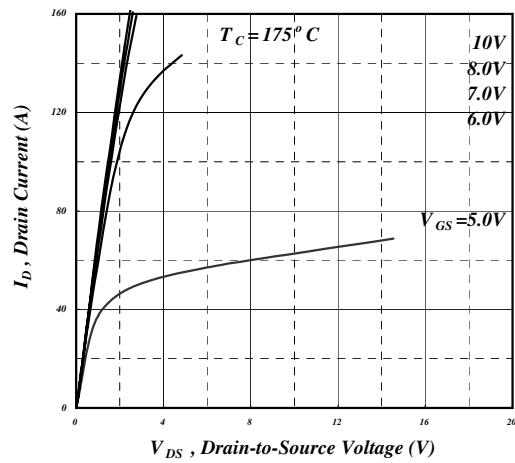


Fig 2. Typical Output Characteristics

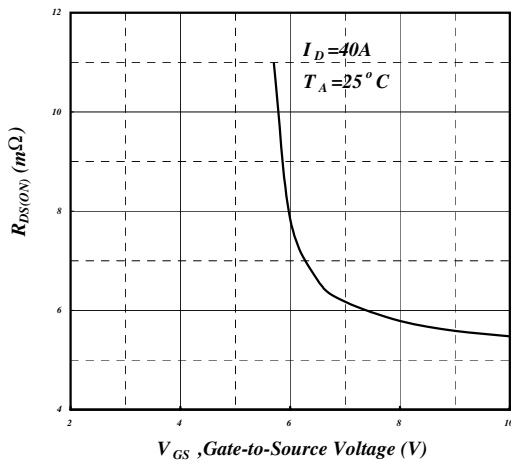


Fig 3. Normalized BV_{DSS} vs. Junction Temperature

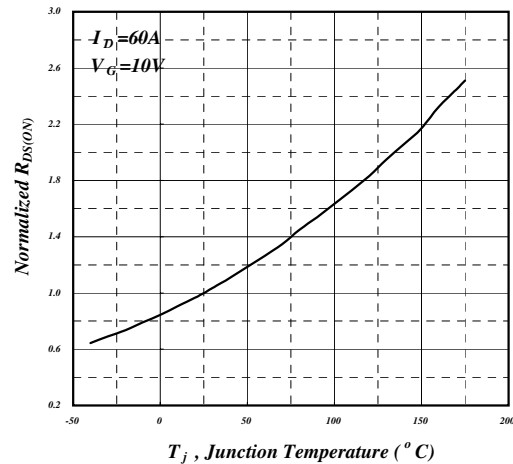


Fig 4. Normalized On-Resistance vs. Junction Temperature

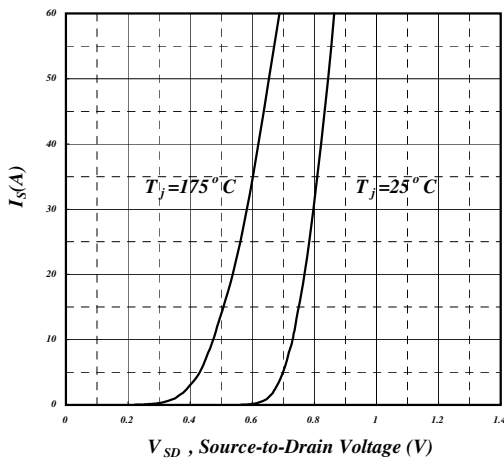


Fig 5. Forward Characteristic of Reverse Diode

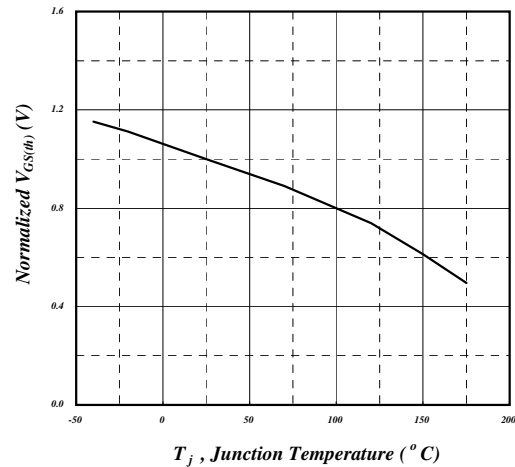


Fig 6. Gate Threshold Voltage vs. Junction Temperature



Typical Electrical Characteristics (cont.)

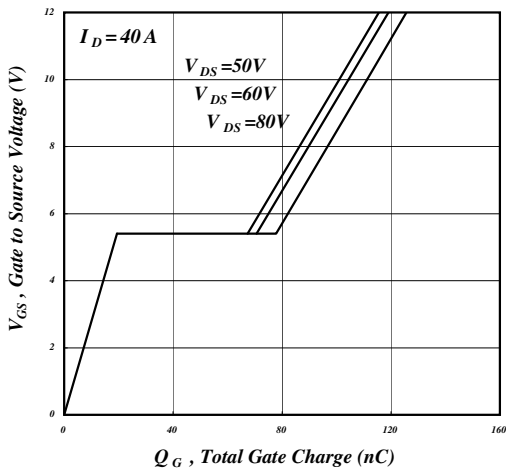


Fig 7. Gate Charge Characteristics

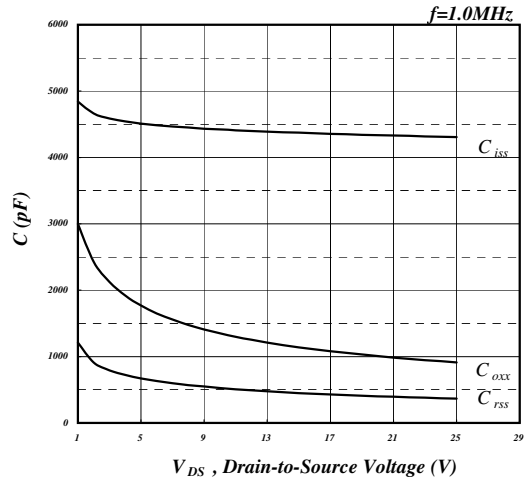


Fig 8. Typical Capacitance Characteristics

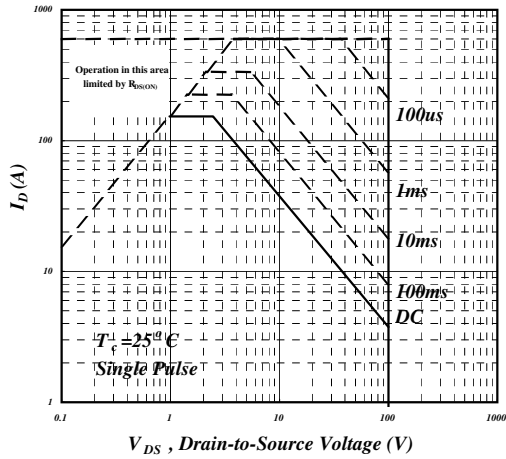


Fig 9. Maximum Safe Operating Area

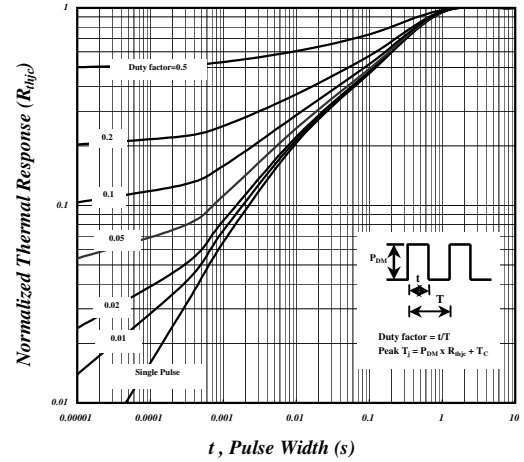


Fig 10. Effective Transient Thermal Impedance

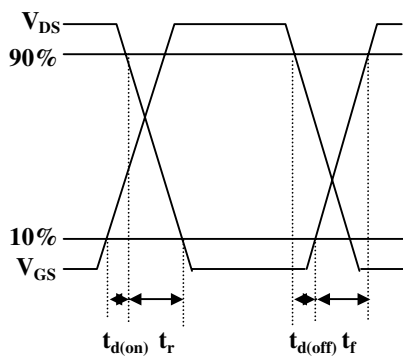


Fig 11. Switching Time Waveforms

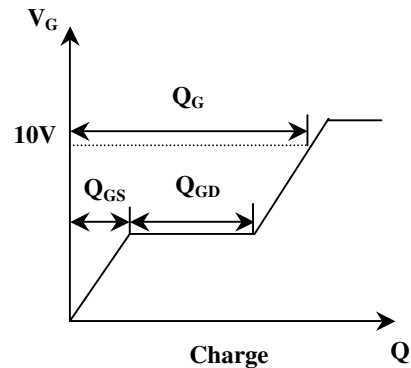
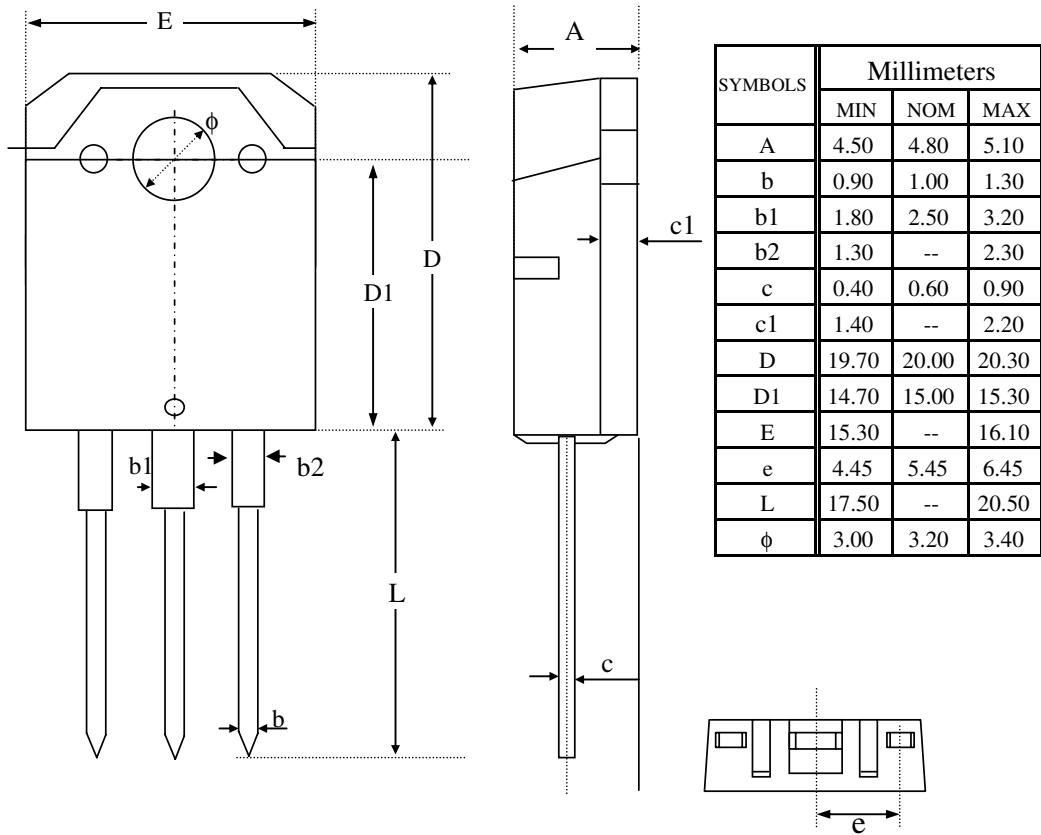


Fig 12. Gate Charge Waveform



Package Dimensions: TO-3P



1. All dimensions are in millimeters.
2. Dimensions do not include mold protrusions.

Marking Information: TO-3P

