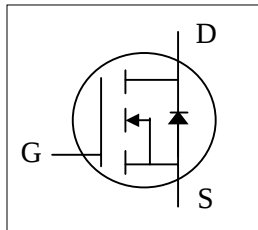




▼ Simple Drive Requirement

▼ Low Gate Charge

▼ Fast Switching

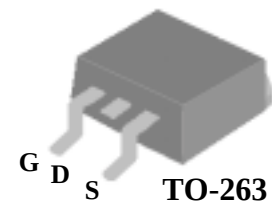


BV_{DS}	25V
$R_{DS(ON)}$	25m Ω
I_D	28A

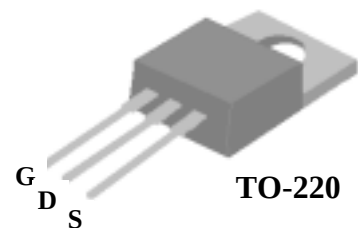
Description

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

The TO-263 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters. The through-hole version (AP40T03P) are available for low-profile applications.



TO-263



TO-220

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	25	V
V_{GS}	Gate-Source Voltage	± 25	V
$I_D@T_A=25^\circ\text{C}$	Continuous Drain Current, V_{GS} @ 10V	28	A
$I_D@T_A=100^\circ\text{C}$	Continuous Drain Current, V_{GS} @ 10V	24	A
I_{DM}	Pulsed Drain Current ¹	95	A
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation	31.25	W
	Linear Derating Factor	0.25	W/ $^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Value	Unit
R_{thj-c}	Thermal Resistance Junction-case Max.	4.0	$^\circ\text{C}/\text{W}$
R_{thj-a}	Thermal Resistance Junction-ambient Max.	62	$^\circ\text{C}/\text{W}$



AP40T03S/P

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

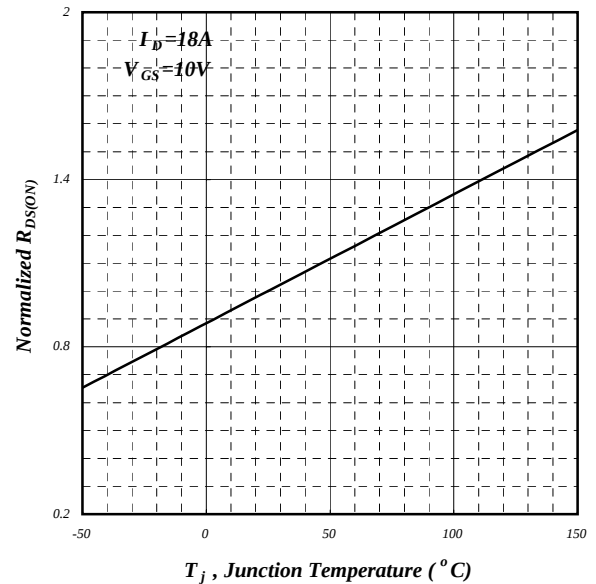
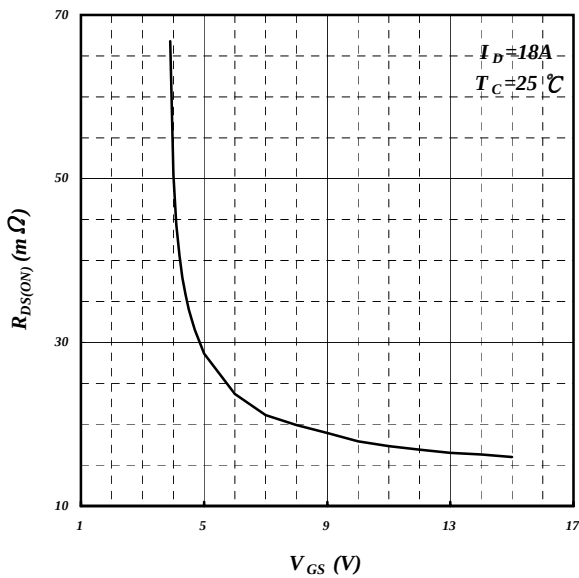
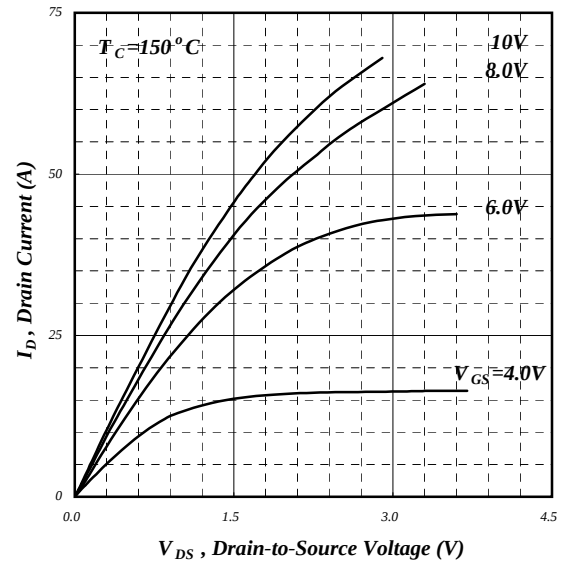
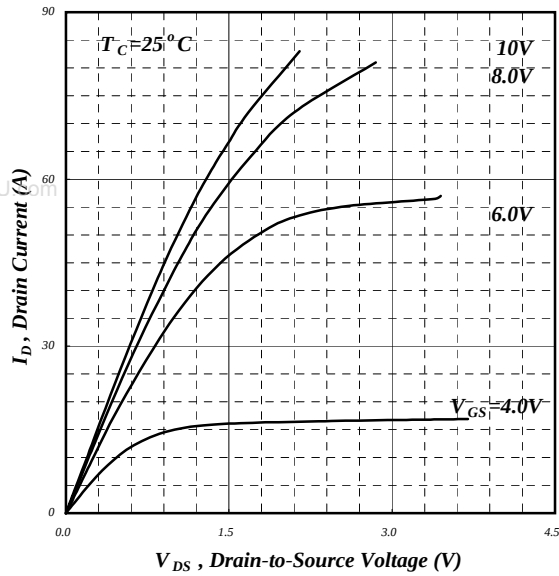
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	25	-	-	V
ΔBV _{DSS} /ΔT _j	Breakdown Voltage Temperature Coefficient	Reference to 25°C, I _D =1mA	-	0.032	-	V/°C
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =18A	-	-	25	mΩ
		V _{GS} =4.5V, I _D =14A	-	-	45	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250uA	1	-	3	V
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =18A	-	15	-	S
I _{DSS}	Drain-Source Leakage Current (T _j =25°C)	V _{DS} =25V, V _{GS} =0V	-	-	1	uA
	Drain-Source Leakage Current (T _j =150°C)	V _{DS} =20V, V _{GS} =0V	-	-	25	uA
I _{GSS}	Gate-Source Leakage	V _{GS} = ± 25V	-	-	±100	nA
Q _g	Total Gate Charge ²	I _D =18A	-	8.8	-	nC
Q _{gs}	Gate-Source Charge	V _{DS} =20V	-	2.5	-	nC
Q _{gd}	Gate-Drain ("Miller") Charge	V _{GS} =4.5V	-	5.8	-	nC
t _{d(on)}	Turn-on Delay Time ²	V _{DS} =15V	-	6	-	ns
t _r	Rise Time	I _D =18A	-	62	-	ns
t _{d(off)}	Turn-off Delay Time	R _G =3.3Ω, V _{GS} =10V	-	16	-	ns
t _f	Fall Time	R _D =0.83Ω	-	4.4	-	ns
C _{iss}	Input Capacitance	V _{GS} =0V	-	655	-	pF
C _{oss}	Output Capacitance	V _{DS} =25V	-	145	-	pF
C _{rss}	Reverse Transfer Capacitance	f=1.0MHz	-	95	-	pF

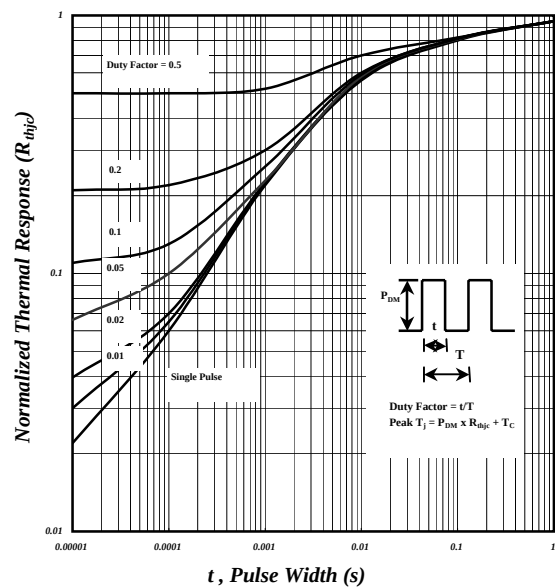
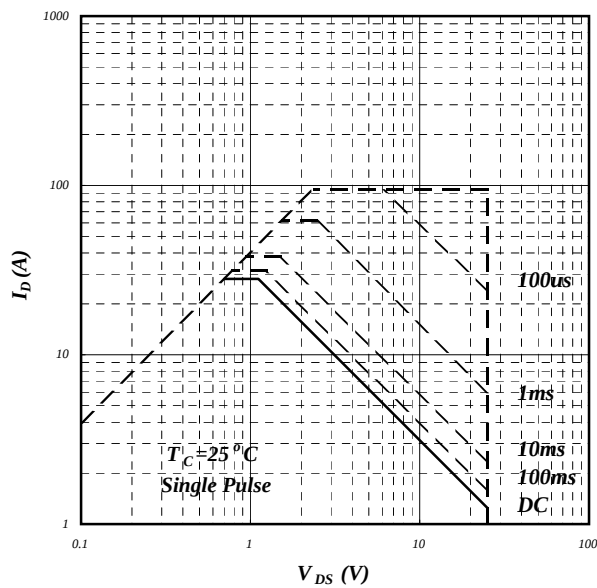
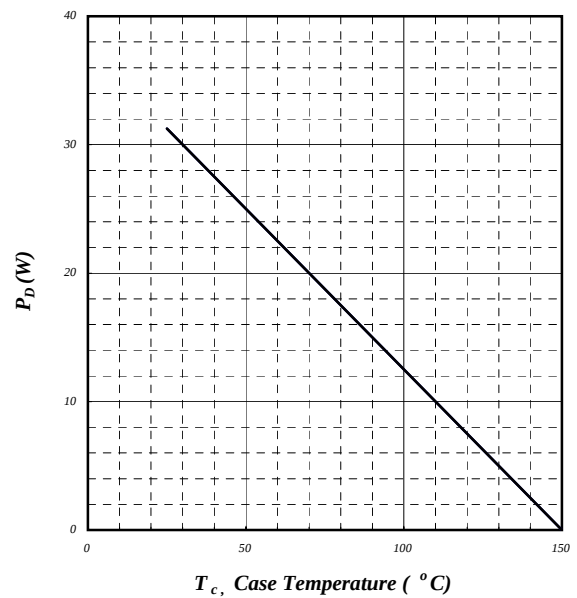
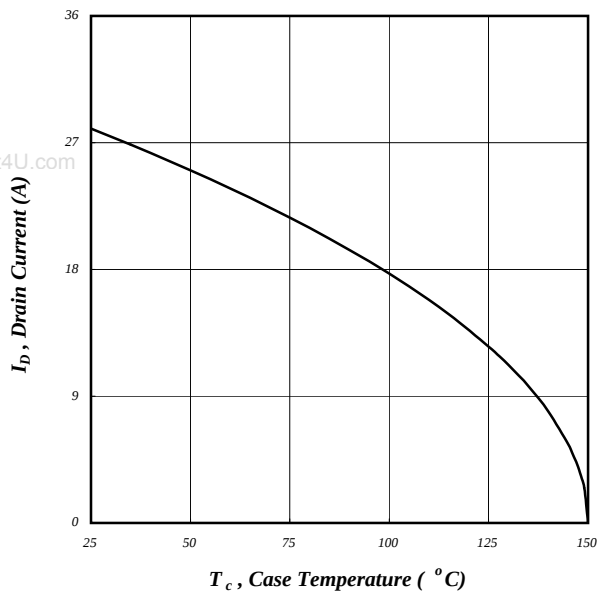
Source-Drain Diode

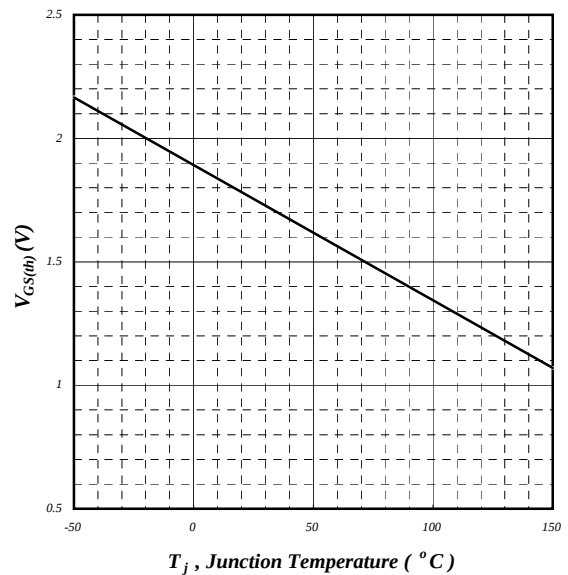
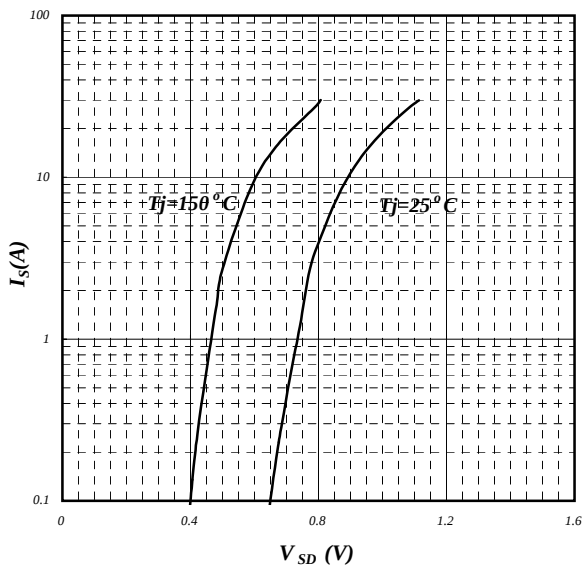
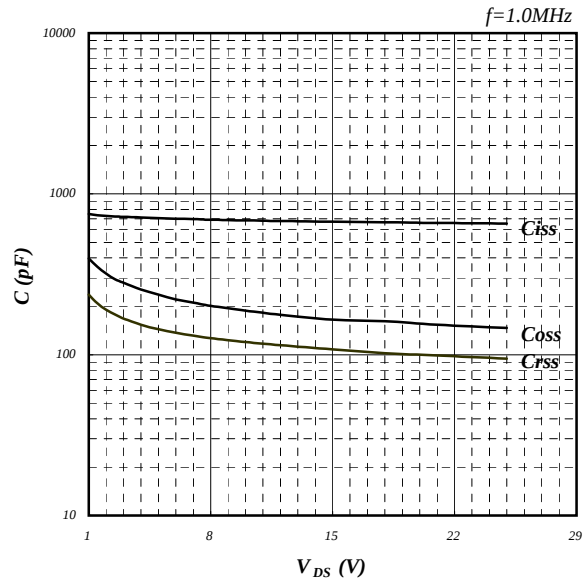
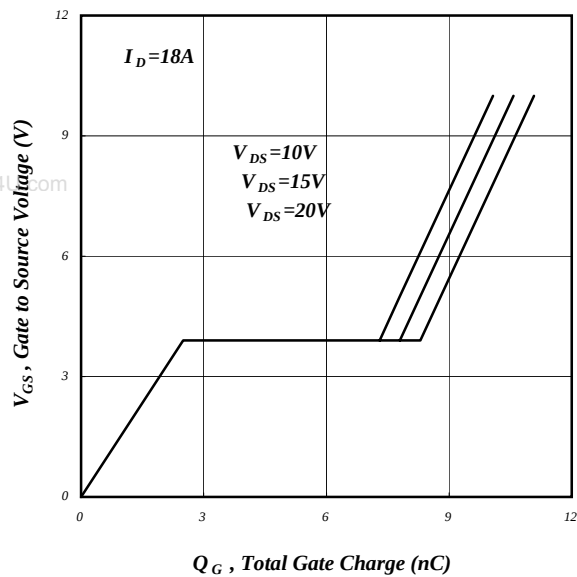
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
I _S	Continuous Source Current (Body Diode)	V _D =V _G =0V, V _S =1.3V	-	-	28	A
I _{SM}	Pulsed Source Current (Body Diode) ¹		-	-	95	A
V _{SD}	Forward On Voltage ²	T _j =25°C, I _S =28A, V _{GS} =0V	-	-	1.3	V

Notes:

- 1.Pulse width limited by safe operating area.
- 2.Pulse width ≤300us, duty cycle ≤2%.







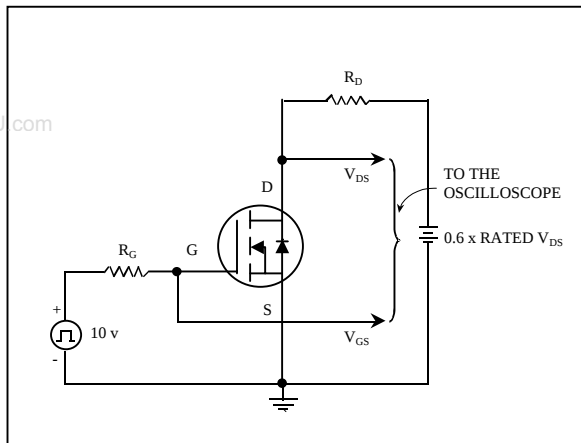


Fig 13. Switching Time Circuit

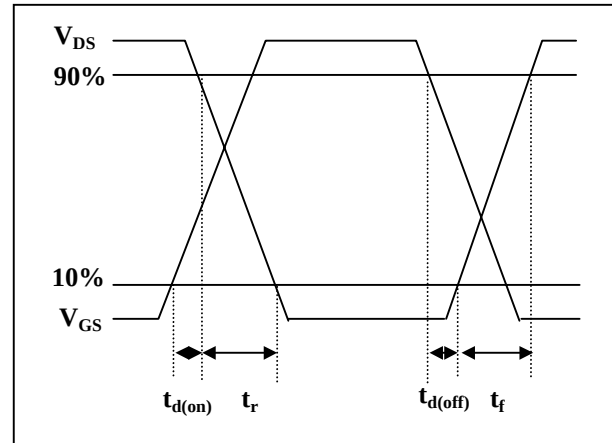


Fig 14. Switching Time Waveform

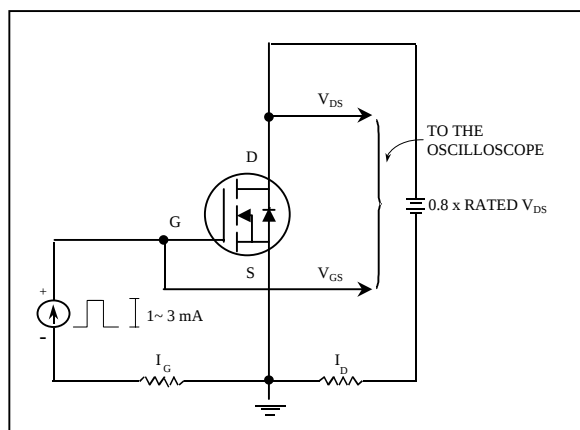


Fig 15. Gate Charge Circuit

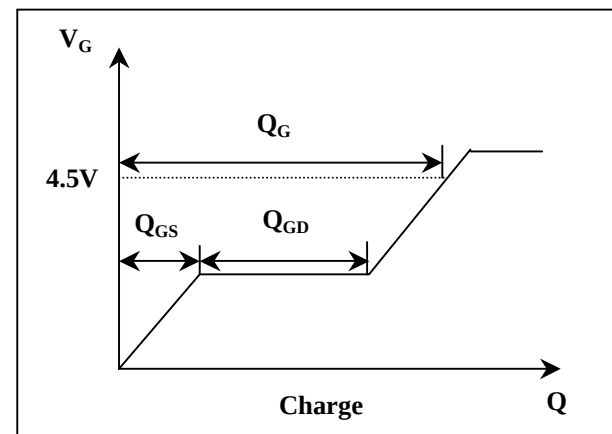


Fig 16. Gate Charge Waveform