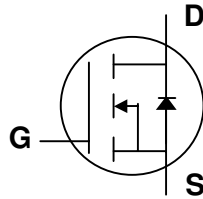




N-channel Enhancement-mode Power MOSFET

- Simple Drive Requirement**
- Low On-resistance**
- Fast Switching Performance**
- RoHS-compliant, halogen-free**

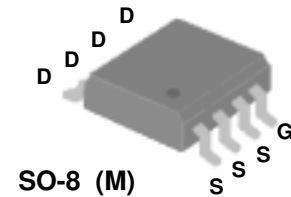


BV_{DSS}	30V
$R_{DS(ON)}$	6mΩ
I_D	18.2A

Description

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

The AP83T03GM-HF-3 is in the SO-8 package, which is widely used for commercial and industrial surface-mount applications, and is well suited for low voltage applications such as DC/DC converters.



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D at $T_C=25\text{ }^\circ\text{C}$	Continuous Drain Current ³	18.2	A
I_D at $T_C= 70\text{ }^\circ\text{C}$	Continuous Drain Current ³	13.3	A
I_{DM}	Pulsed Drain Current ¹	70	A
P_D at $T_C=25\text{ }^\circ\text{C}$	Total Power Dissipation	3	W
	Linear Derating Factor	0.02	W/°C
T_{STG}	Storage Temperature Range	-55 to 175	°C
T_J	Operating Junction Temperature Range	-55 to 175	°C

Thermal Data

Symbol	Parameter	Value	Unit
Rthj-a	Maximum Thermal Resistance, Junction-ambient	50	°C/W

Ordering Information

AP83T03GM-HF-3TR : in RoHS-compliant halogen-free SO-8, shipped on tape and reel (3000 pcs/reel)



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	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance ²	$V_{GS}=10V, I_D=12A$	-	-	6	m Ω
		$V_{GS}=4.5V, I_D=6A$	-	-	11	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1	-	3	V
g_{fs}	Forward Transconductance	$V_{DS}=10V, I_D=12A$	-	55	-	S
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=30V, V_{GS}=0V$	-	-	10	μA
I_{GSS}	Gate-Source Leakage	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Q_g	Total Gate Charge ²	$I_D=12A$	-	21	-	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=24V$	-	3.5	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge	$V_{GS}=4.5V$	-	15	-	nC
$t_{d(on)}$	Turn-on Delay Time ²	$V_{DS}=15V$	-	9.5	-	ns
t_r	Rise Time	$I_D=12A$	-	86	-	ns
$t_{d(off)}$	Turn-off Delay Time	$R_G=3.3\Omega, V_{GS}=10V$	-	24	-	ns
t_f	Fall Time		-	14	-	ns
C_{iss}	Input Capacitance	$V_{GS}=0V$	-	1150	-	pF
C_{oss}	Output Capacitance	$V_{DS}=25V$	-	340	-	pF
C_{rss}	Reverse Transfer Capacitance	$f=1.0\text{MHz}$	-	250	-	pF
R_g	Gate Resistance	$f=1.0\text{MHz}$	-	0.9	-	Ω

Source-Drain Diode

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V_{SD}	Forward On Voltage ²	$I_S=30A, V_{GS}=0V$	-	-	1.2	V
t_{rr}	Reverse Recovery Time ²	$I_S=12A, V_{GS}=0V,$	-	29	-	ns
Q_{rr}	Reverse Recovery Charge	$di/dt=100A/\mu s$	-	22	-	nC

Notes:

1. Pulse width limited by maximum junction temperature.
2. Pulse test - pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. Surface mounted on 1 in² copper pad of FR4 board; 125°C/W on minimum copper pad.

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

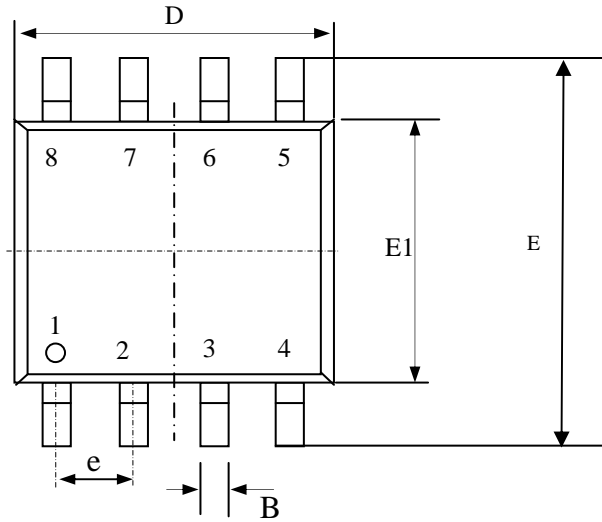
USE OF THIS PRODUCT AS A CRITICAL COMPONENT IN LIFE SUPPORT OR OTHER SIMILAR SYSTEMS IS NOT AUTHORIZED.

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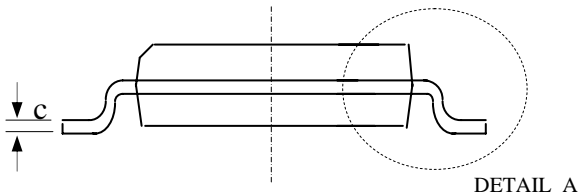
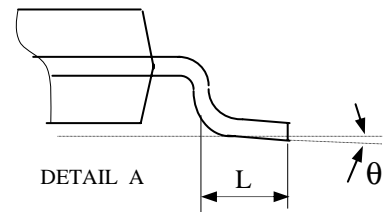
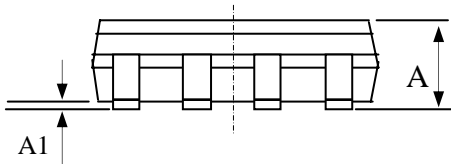
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Package Dimensions: SO-8

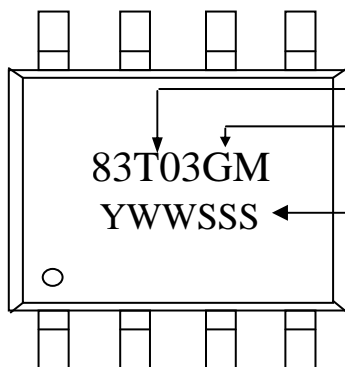


SYMBOLS	Millimeters		
	MIN	NOM	MAX
A	1.35	1.55	1.75
A1	0.10	0.18	0.25
B	0.33	0.41	0.51
C	0.19	0.22	0.25
D	4.80	4.90	5.00
E1	3.80	3.90	4.00
E	5.80	6.15	6.50
L	0.38	0.71	1.27
θ	0	4.00	8.00
e	1.27 TYP		



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

Marking Information:



Product: AP83T03
 Package:
 GM = RoHS-compliant halogen-free SO-8
 Date/lot code (YWWSSS)
 Y: Last digit of the year
 WW: Work week
 SSS: Lot code sequence