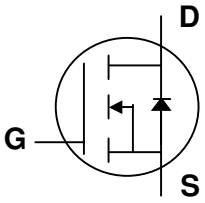
N-channel Enhancement-mode Power MOSFET

Simple Drive Requirement

Low On-resistance

Fast Switching Performance

RoHS-compliant, halogen-free

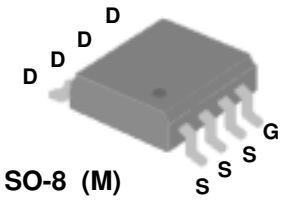


BV_{DSS}	30V
$R_{DS(ON)}$	6mΩ
I_D	18.2A

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.



SO-8 (M)

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℃	Continuous Drain Current[3]	18.2	A
I_D at T_C= 70℃	Continuous Drain Current[3]	13.3	A
I_{DM}	Pulsed Drain Current[1]	70	A
P_D at T_C=25℃	Total Power Dissipation	3	W
	Linear Derating Factor	0.02	W/℃
T_{STG}	Storage Temperature Range	-55 to 175	℃
T_J	Operating Junction Temperature Range	-55 to 175	℃

Thermal Data

Symbol	Parameter	Value	Unit
Rthj-a	Maximum Thermal Resistance, Junction-ambient	50	℃/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℃ (unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	30	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=10V, I_D=12A	-	-	6	mΩ
		V_{GS}=4.5V, I_D=6A	-	-	11	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=12A	-	55	-	S
I_{DSS}	Drain-Source Leakage Current	V_{DS}=30V, V_{GS}=0V	-	-	10	uA
I_{GSS}	Gate-Source Leakage	V_{GS}=±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=3.3Ω , 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=1.0MHz	-	250	-	pF
R_g	Gate Resistance	f=1.0MHz	-	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/μs	-	22	-	nC

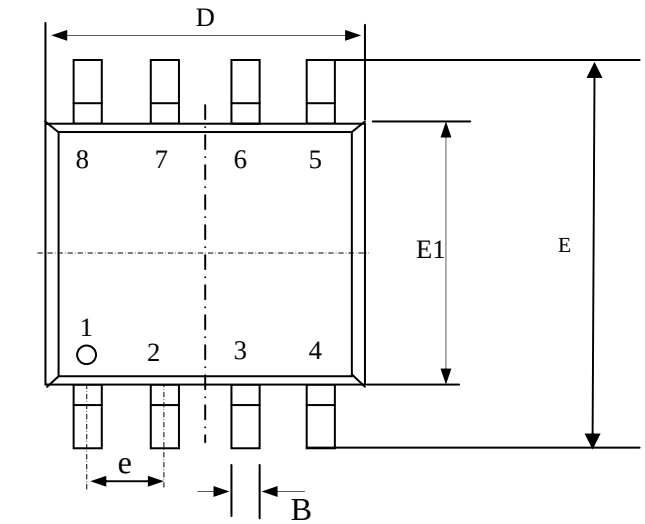
Notes:

1.Pulse width limited by maximum junction temperature.

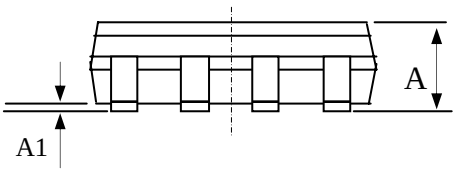
2.Pulse test - pulse width ≤300μs , duty cycle ≤2%

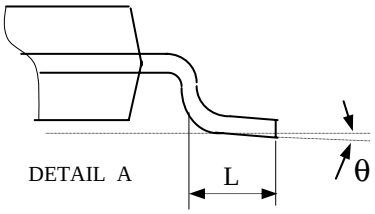
3.Surface mounted on 1 in^2 copper pad of FR4 board; 125℃/W on minimum copper pad.

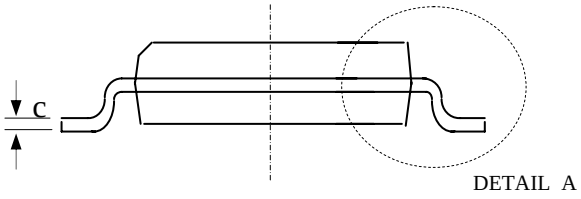
Package Dimensions: SO-8



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: