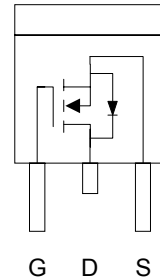


N-Channel Enhancement Mode Field Effect Transistor

Features

- 30V/12A, $R_{DS(ON)} = 150m\Omega(\text{max}) @ V_{GS} = 10V$
 $R_{DS(ON)} = 300m\Omega(\text{max}) @ V_{GS} = 4.5V$
- Super High Dense Cell Design
- High Power and Current Handling Capability
- TO-252 Package

Pin Description

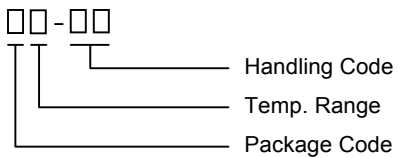


Top View of TO-252

Applications

- Switching Regulators
- Switching Converters

Ordering Information

<p>APM3055L □□-□□</p> <div style="margin-left: 20px;">  </div>	<p>Package Code U : TO-252 Temp. Range C : 0 to 70°C Handling Code TR : Tape & Reel</p>
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Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

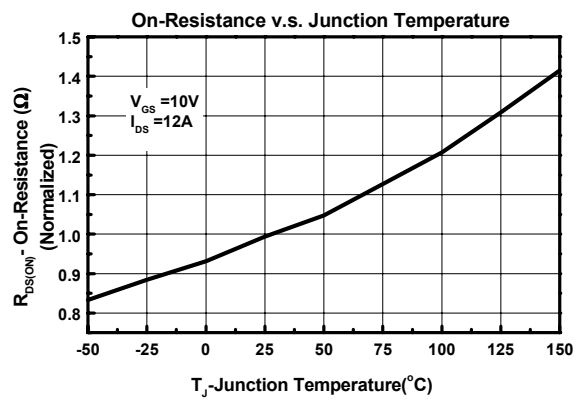
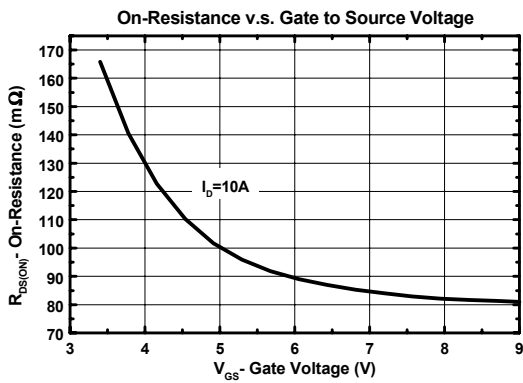
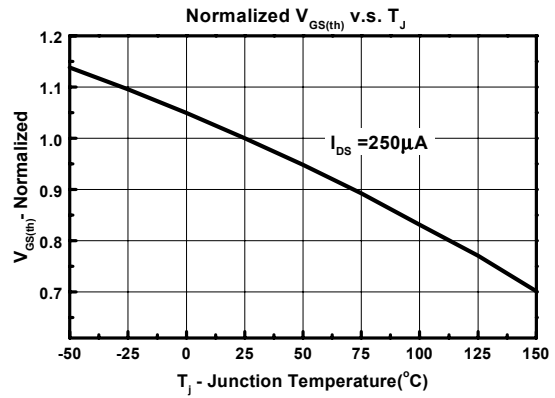
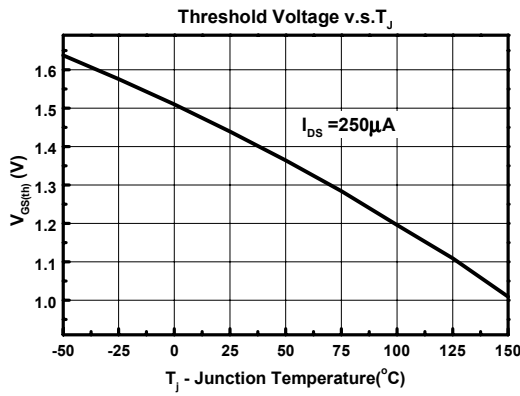
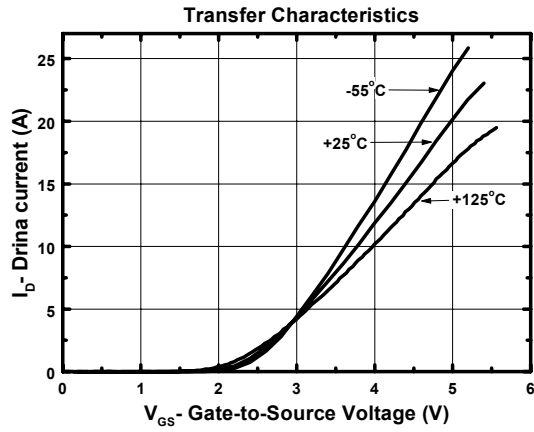
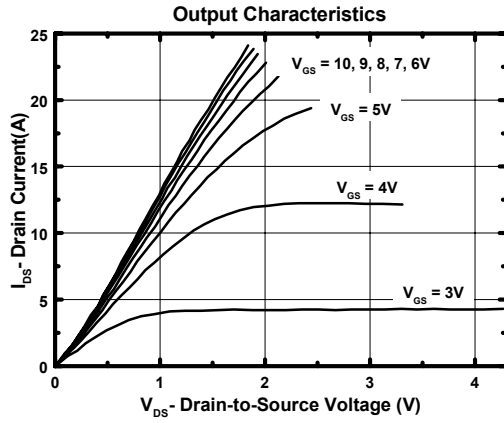
Symbol	Parameter	Rating	Unit	
V_{DSS}	Drain-Source Voltage	30	V	
V_{GSS}	Gate-Source Voltage	± 20		
I_D	Maximum Drain Current – Continuous	15	A	
I_{DM}	Maximum Drain Current – Pulsed	30		
P_D	Maximum Power Dissipation	$T_A = 25^\circ\text{C}$	50	W
		Derate above 25°C	0.3	W/°C
T_J	Maximum Junction Temperature	150	°C	
T_{STG}	Storage Temperature Range	-55 to 150	°C	

ANPEC reserves the right to make changes to improve reliability or manufacturability without notice, and advise customers to obtain the latest version of relevant information to verify before placing orders.

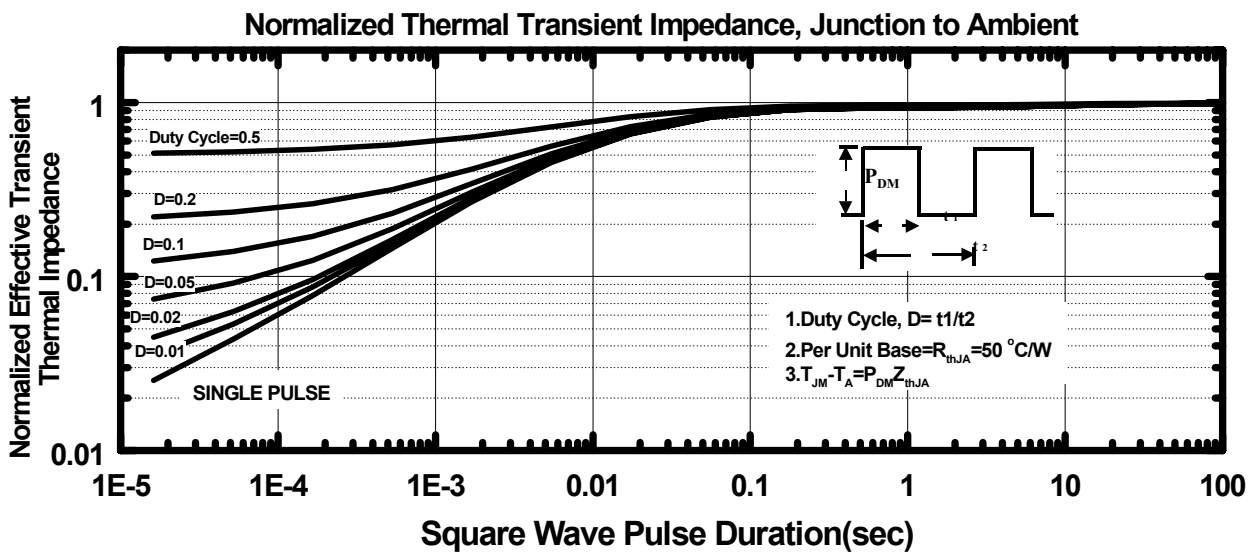
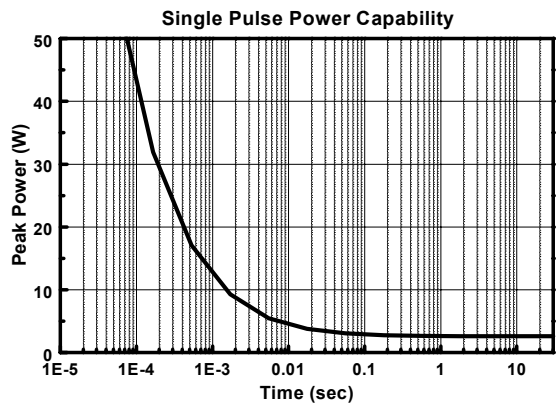
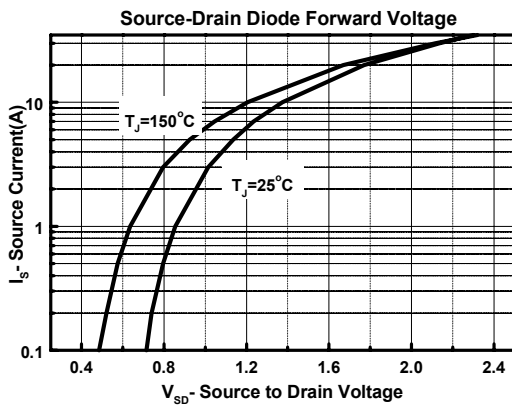
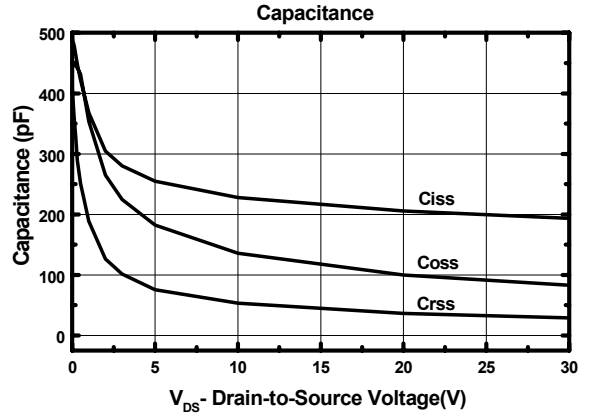
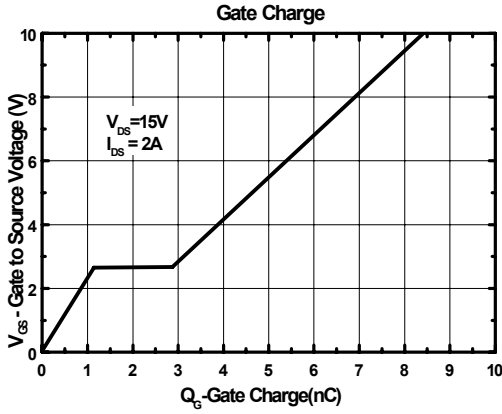
Electrical Characteristics (T_A = 25°C unless otherwise noted)

Symbol	Parameter	Test Condition	APM3055L			Unit
			Min.	Typ.	Max.	
Static						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	30			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =24V, V _{GS} =0V			1	μA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1	1.5		V
I _{GSS}	Gate Leakage Current	V _{GS} =±20V, V _{DS} =0V			±100	nA
R _{DS(ON)}	Drain-Source On-state Resistance	V _{GS} =4.5V, I _D =6A		120	300	mΩ
		V _{GS} =10V, I _D =12A		80	150	
V _{SD}	Diode Forward Voltage	I _S =6A, V _{GS} =0V		1.1	1.5	V
Dynamic						
Q _g	Total Gate Charge	V _{DS} =15V, V _{GS} =10V, I _D =2A		8.5	12	nC
Q _{gs}	Gate-Source Charge			1.1		nC
Q _{gd}	Gate-Drain Charge			1.8		nC
t _{ON}	Turn-on Time	V _{DD} =15V, I _D =2A, V _{GS} =10V, R _G =6Ω			40	ns
t _{d(ON)}	Turn-on Delay Time			11		ns
t _r	Turn-on Rise Time			17		ns
t _{d(OFF)}	Turn-off Delay Time			37		ns
t _f	Turn-off Fall Time			20		ns
t _{OFF}	Turn-off Time				60	ns

Typical Characteristics

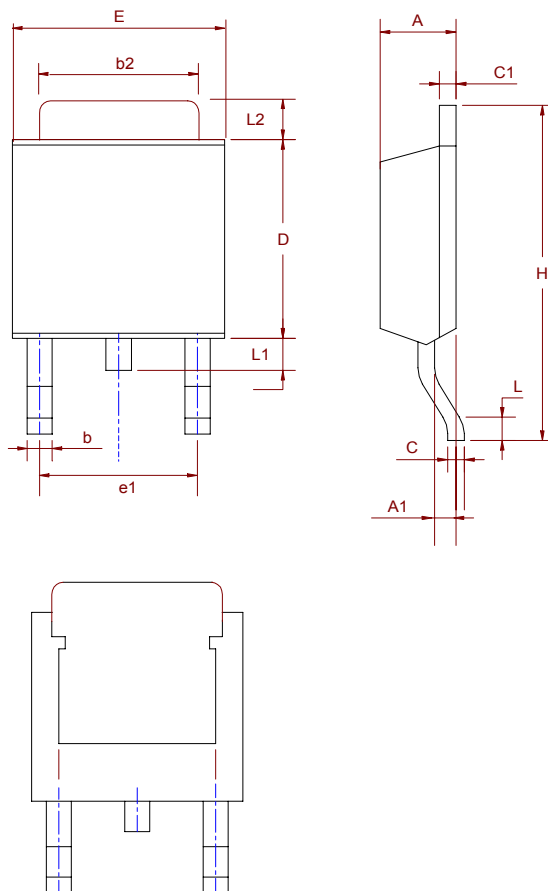


Typical Characteristics (Cont.)



Package Information

TO-252 (Reference JEDEC Registration TO-252)



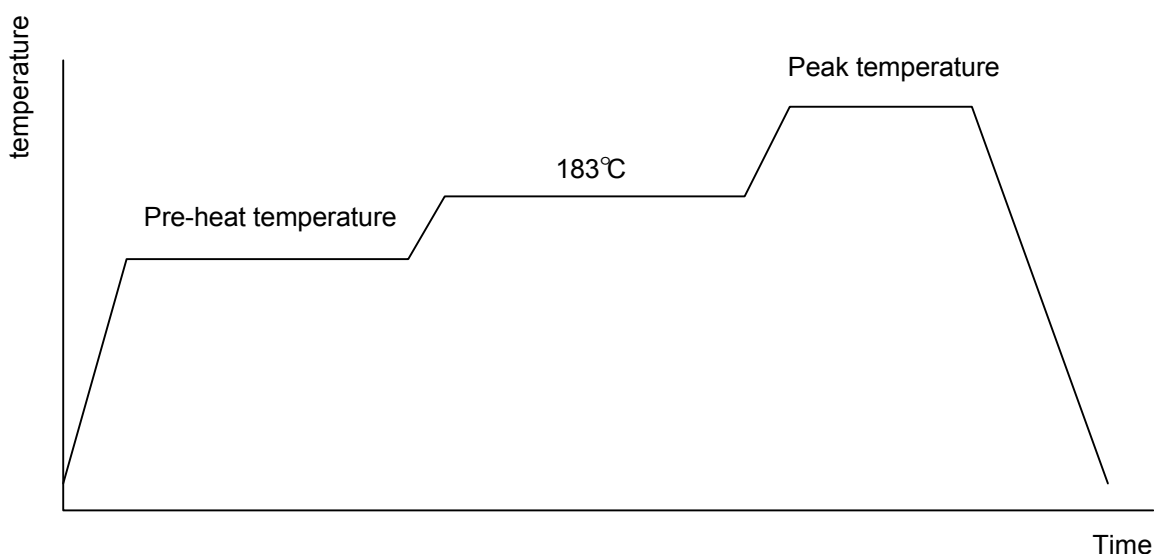
	Min.	Max.	Min.	Max.
A	2.18	2.39	0.086	0.094
A1	0.89	1.27	0.035	0.050
b	0.508	0.89	0.020	0.035
b2	5.207	5.461	0.205	0.215
C	0.46	0.58	0.018	0.023
C1	0.46	0.58	0.018	0.023
D	5.334	6.22	0.210	0.245
E	6.35	6.73	0.250	0.265
e1	3.96	5.18	0.156	0.204
H	9.398	10.41	0.370	0.410
L	0.51		0.020	
L1	0.64	1.02	0.025	0.040
L2	0.89	2.032	0.035	0.080

Physical Specifications

Terminal Material	Solder-Plated Copper (Solder Material : 90/10 or 63/37 SnPb)
Lead Solderability	Meets EIA Specification RSI86-91, ANSI/J-STD-002 Category 3.
Packaging	2500 devices per reel for TO-252

Reflow Condition (IR/Convection or VPR Reflow)

Reference JEDEC Standard J-STD-020A APRIL 1999



Classification Reflow Profiles

	Convection or IR/ Convection	VPR
Average ramp-up rate(183°C to Peak)	3°C/second max.	10 °C /second max.
Preheat temperature 125 ± 25°C)	120 seconds max.	
Temperature maintained above 183°C	60 ~ 150 seconds	
Time within 5°C of actual peak temperature	10 ~ 20 seconds	60 seconds
Peak temperature range	220 +5/-0°C or 235 +5/-0°C	215~ 219°C or 235 +5/-0°C
Ramp-down rate	6 °C /second max.	10 °C /second max.
Time 25°C to peak temperature	6 minutes max.	

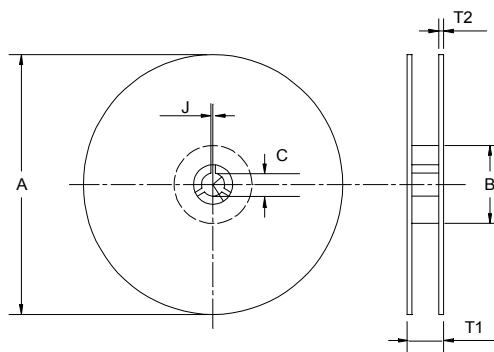
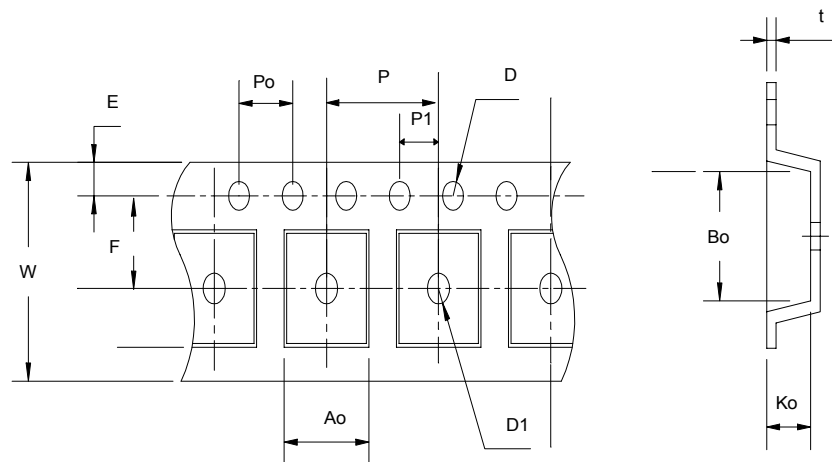
Package Reflow Conditions

pkg. thickness ≥ 2.5mm and all bags	pkg. thickness < 2.5mm and pkg. volume ≥ 350 mm ³	pkg. thickness < 2.5mm and pkg. volume < 350mm ³
Convection 220 +5/-0 °C		Convection 235 +5/-0 °C
VPR 215-219 °C		VPR 235 +5/-0 °C
IR/Convection 220 +5/-0 °C		IR/Convection 235 +5/-0 °C

Reliability test program

Test item	Method	Description
SOLDERABILITY	MIL-STD-883D-2003	245°C , 5 SEC
HOLT	MIL-STD-883D-1005.7	1000 Hrs Bias @ 125 °C
PCT	JESD-22-B, A102	168 Hrs, 100 % RH , 121°C
TST	MIL-STD-883D-1011.9	-65°C ~ 150°C, 200 Cycles

Carrier Tape & Reel Dimensions



Carrier Tape & Reel Dimensions(Cont.)

Application	A	B	C	J	T1	T2	W	P	E
TO-252	330±3	100 ± 2	13 ± 0.5	2 ± 0.5	16.4 +0.3 -0.2	2.5± 0.5	16 + 0.3 16 - 0.1	8 ± 0.1	1.75± 0.1
Application	F	D	D1	Po	P1	Ao	Bo	Ko	t
TO-252	7.5 ± 0.1	1.5± 0.1	1.5+ 0.25	4.0 ± 0.1	2.0 ± 0.1	6.8 ± 0.1	10.4± 0.1	2.5± 0.1	0.3±0.05

(mm)

Cover Tape Dimensions

Carrier Width	16
Cover Tape Width	13.3

(mm)

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