ADVANCED POWER TECHNOLOGY®

APT10025JLC

1000V   34A   0.250Ω

POWER MOS VI™

Power MOS VI™ is a new generation of low gate charge, high voltage N-Channel enhancement mode power MOSFETs. Lower gate charge is achieved by optimizing the manufacturing process to minimize C_{iss} and C_{rss}. Lower gate charge coupled with Power MOS VI™ optimized gate layout, delivers exceptionally fast switching speeds.

SOT-227

ISOTOP®

UL "UL Recognized"

- **Lower Gate Charge**
- **Faster Switching**
- **100% Avalanche Tested**

- **Lower Input Capacitance**
- **Easier To Drive**
- **Popular SOT-227 Package**

MAXIMUM RATINGS

All Ratings: T_C = 25°C unless otherwise specified.

Symbol	Parameter	APT10025JLC	UNIT
V_{DSS}	Drain-Source Voltage	1000	Volts
I_D	Continuous Drain Current @ T_C = 25°C	34	Amps
I_{DM}	Pulsed Drain Current [1]	136	
V_{GS}	Gate-Source Voltage Continuous	±30	Volts
V_{GSM}	Gate-Source Voltage Transient	±40	
P_D	Total Power Dissipation @ T_C = 25°C	700	Watts
	Linear Derating Factor	5.6	W/°C
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to 150	°C
T_L	Lead Temperature: 0.063" from Case for 10 Sec.	300	
I_{AR}	Avalanche Current [1] (Repetitive and Non-Repetitive)	34	Amps
E_{AR}	Repetitive Avalanche Energy [1]	50	mJ
E_{AS}	Single Pulse Avalanche Energy [4]	3600	

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
BV_{DSS}	Drain-Source Breakdown Voltage (V_{GS} = 0V, I_D = 250µA)	1000			Volts
$I_{D(on)}$	On State Drain Current [2] (V_{DS} > $I_{D(on)}$ x $R_{DS(on)}$ Max, V_{GS} = 10V)	34			Amps
$R_{DS(on)}$	Drain-Source On-State Resistance [2] (V_{GS} = 10V, 0.5 $I_{D[Cont.]}$)			0.250	Ohms
I_{DSS}	Zero Gate Voltage Drain Current (V_{DS} = V_{DSS}, V_{GS} = 0V)			100	µA
	Zero Gate Voltage Drain Current (V_{DS} = 0.8 V_{DSS}, V_{GS} = 0V, T_C = 125°C)			500	
I_{GSS}	Gate-Source Leakage Current (V_{GS} = ±30V, V_{DS} = 0V)			±100	nA
$V_{GS(th)}$	Gate Threshold Voltage (V_{DS} = V_{GS}, I_D = 5mA)	3		5	Volts

CAUTION: These Devices are Sensitive to Electrostatic Discharge. Proper Handling Procedures Should Be Followed.

APT Website - http://www.advancedpower.com

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
C_{iss}	Input Capacitance	$V_{GS} = 0V$		11360		pF
C_{oss}	Output Capacitance	$V_{DS} = 25V$		1370		
C_{rss}	Reverse Transfer Capacitance	$f = 1$ MHz		460		
Q_g	Total Gate Charge ③	$V_{GS} = 10V$		330		nC
Q_{gs}	Gate-Source Charge	$V_{DD} = 0.5\,V_{DSS}$		53		
Q_{gd}	Gate-Drain ("Miller") Charge	$I_D = I_{D[Cont.]}$ @ 25°C		144		
$t_{d(on)}$	Turn-on Delay Time	$V_{GS} = 15V$		25		ns
t_r	Rise Time	$V_{DD} = 0.5\,V_{DSS}$		20		
$t_{d(off)}$	Turn-off Delay Time	$I_D = I_{D[Cont.]}$ @ 25°C		71		
t_f	Fall Time	$R_G = 0.6\Omega$		10		

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Symbol	Characteristic / Test Conditions	MIN	TYP	MAX	UNIT
I_S	Continuous Source Current (Body Diode)			34	Amps
I_{SM}	Pulsed Source Current ① (Body Diode)			136	
V_{SD}	Diode Forward Voltage ② ($V_{GS} = 0V$, $I_S = -I_{D[Cont.]}$)			1.3	Volts
t_{rr}	Reverse Recovery Time ($I_S = -I_{D[Cont.]}$, $dI_S/dt = 100A/\mu s$)		1300		ns
Q_{rr}	Reverse Recovery Charge ($I_S = -I_{D[Cont.]}$, $dI_S/dt = 100A/\mu s$)		38.0		μC

THERMAL CHARACTERISTICS

Symbol	Characteristic	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction to Case			0.18	°C/W
$R_{\theta JA}$	Junction to Ambient			40	

① Repetitive Rating: Pulse width limited by maximum junction temperature.

② Pulse Test: Pulse width < 380 μS, Duty Cycle < 2%

③ See MIL-STD-750 Method 3471

④ Starting T_j = +25°C, L = 6.23mH, R_G = 25Ω, Peak I_L = 34A

APT Reserves the right to change, without notice, the specifications and information contained herein.

SOT-227 (ISOTOP®) Package Outline
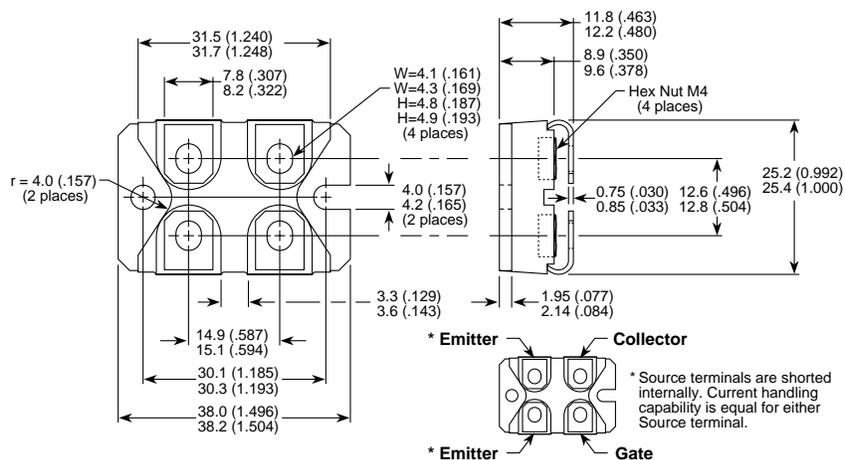
Dimensions in Millimeters and (Inches)

31.5 (1.240)
31.7 (1.248)
7.8 (.307)
8.2 (.322)
W=4.1 (.161)
W=4.3 (.169)
H=4.8 (.187)
H=4.9 (.193)
(4 places)
r = 4.0 (.157) (2 places)
4.0 (.157)
4.2 (.165)
(2 places)
3.3 (.129)
3.6 (.143)
14.9 (.587)
15.1 (.594)
30.1 (1.185)
30.3 (1.193)
38.0 (1.496)
38.2 (1.504)
11.8 (.463)
12.2 (.480)
8.9 (.350)
9.6 (.378)
Hex Nut M4 (4 places)
0.75 (.030)
0.85 (.033)
12.6 (.496)
12.8 (.504)
25.2 (0.992)
25.4 (1.000)
1.95 (.077)
2.14 (.084)

* Emitter — Collector

* Source terminals are shorted internally. Current handling capability is equal for either Source terminal.

* Emitter — Gate