Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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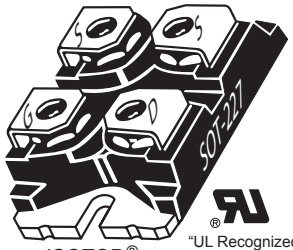
APL502J

500V 52A 0.090Ω

LINEAR MOSFET

Linear Mosfets are optimized for applications operating in the Linear region where concurrent high voltage and high current can occur at near DC conditions (>100 msec).



ISOTOP®

"UL Recognized" file #145592

- **Higher FBSOA**
- **Higher Power Dissipation**
- **RoHS Compliant**
- **Popular SOT-227 Package**
- **SOA Rated**

MAXIMUM RATINGS

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

Symbol	Parameter	APL502J	UNIT
V_{DSS}	Drain-Source Voltage	500	Volts
I_D	Continuous Drain Current @ T_C = 25°C	52	Amps
I_{DM}	Pulsed Drain Current ①	208	
V_{GS}	Gate-Source Voltage Continuous	±30	Volts
V_{GSM}	Gate-Source Voltage Transient	±40	
P_D	Total Power Dissipation @ T_C = 25°C	568	Watts
	Linear Derating Factor	4.55	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)	52	Amps
E_{AR}	Repetitive Avalanche Energy ①	50	mJ
E_{AS}	Single Pulse Avalanche Energy ④	3000	

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Characteristic / Test Conditions / Part Number	MIN	TYP	MAX	UNIT
BV_{DSS}	Drain-Source Breakdown Voltage (V_{GS} = 0V, I_D = 250 µA)	500			Volts
$I_{D(ON)}$	On State Drain Current ②(V_{DS} > I_D(ON) x R_{DS}(ON) Max, V_{GS} = 15V)	52			Amps
$R_{DS(ON)}$	Drain-Source On-State Resistance ②(V_{GS} = 15V, 26A)			0.09	Ohms
I_{DSS}	Zero Gate Voltage Drain Current (V_{DS} = 500V, V_{GS} = 0V)			25	µA
	Zero Gate Voltage Drain Current (V_{DS} = 400V, V_{GS} = 0V, T_C = 125°C)			250	
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 = 2.5mA)	2		4	Volts

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

DYNAMIC CHARACTERISTICS

Symbol	Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
C_{iss}	Input Capacitance	V_{GS} = 0V V_{DS} = 25V f = 1 MHz		7600	9000	pF
C_{oss}	Output Capacitance			1280	1810	
C_{rss}	Reverse Transfer Capacitance			620	930	
$t_{d(on)}$	Turn-on Delay Time	V_{GS} = 15V V_{DD} = 0.5 V_{DSS} I_D = 52A @ 25°C R_G = 0.6Ω		13	26	ns
t_r	Rise Time			24	48	
$t_{d(off)}$	Turn-off Delay Time			58	87	
t_f	Fall Time			14	17	

THERMAL CHARACTERISTICS

Symbol	Characteristic	MIN	TYP	MAX	UNIT
$R_{\theta JC}$	Junction to Case			.22	°C/W
$V_{Isolation}$	RMS Voltage (50-60 Hz Sinusoidal Waveform From Terminals to Mounting Base for 1 Min.)	2500			Volts
W_T	Package Weight		1.03		oz
			29.2		g
Torque	Maximum Torque for Device Mounting Screws and Electrical Terminations.			10	lb•in
				1.1	N•m
SOA1	Safe Operating Area V_{DS} = 400 V, I_{DS} = 0.75A, t = 20 sec., T_C = 60°C	300			Watts

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 = 2.22mH, R_G = 25Ω, Peak I_L = 52A

Microsemi reserves the right to change, without notice, the specifications and information contained herein.

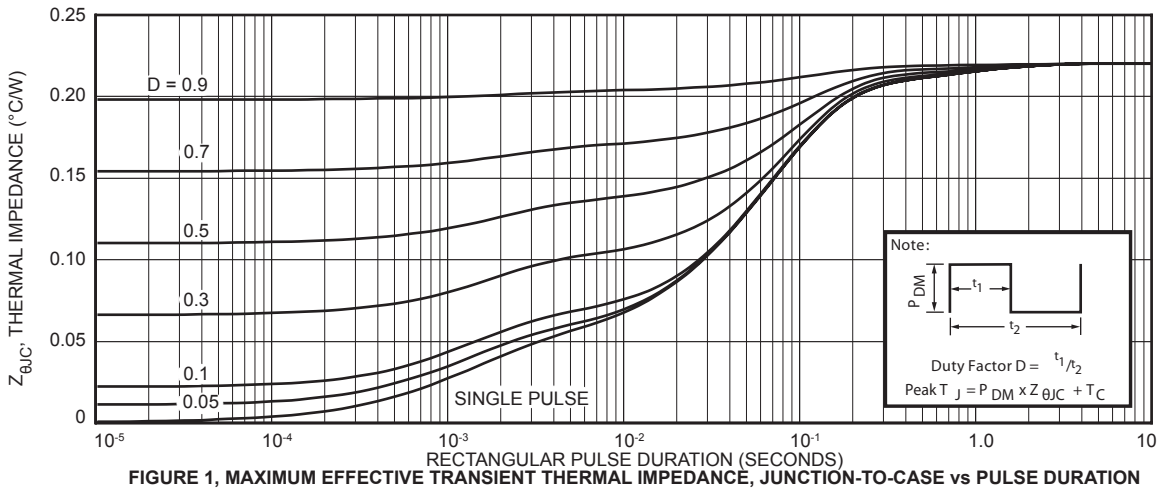


FIGURE 1, MAXIMUM EFFECTIVE TRANSIENT THERMAL IMPEDANCE, JUNCTION-TO-CASE vs PULSE DURATION

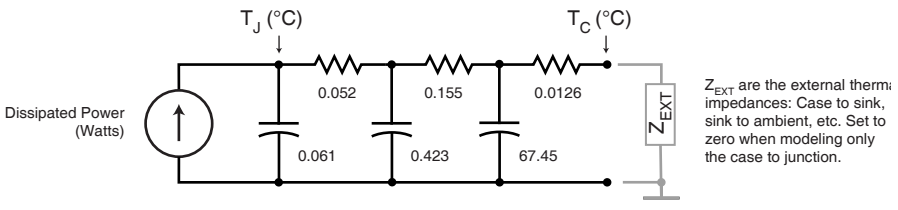


FIGURE 1a, TRANSIENT THERMAL IMPEDANCE MODEL

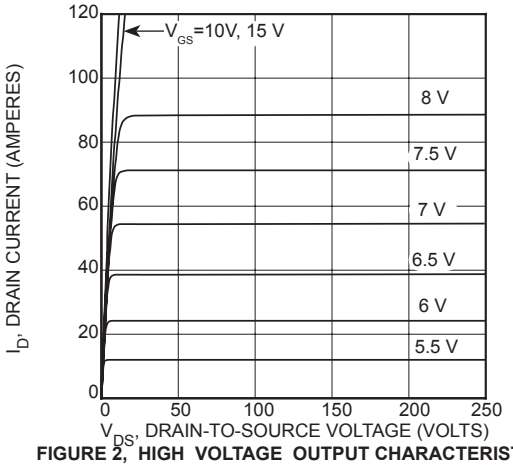


FIGURE 2, HIGH VOLTAGE OUTPUT CHARACTERISTICS

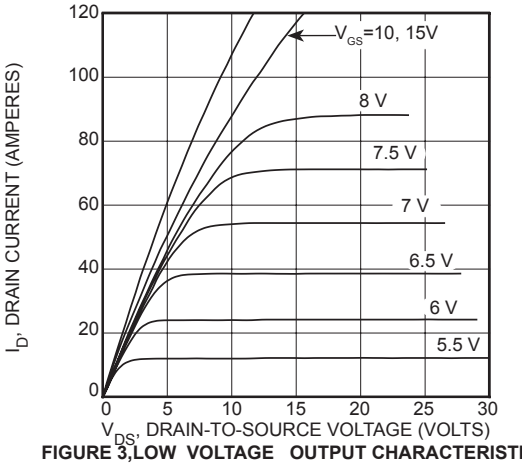


FIGURE 3,LOW VOLTAGE OUTPUT CHARACTERISTICS

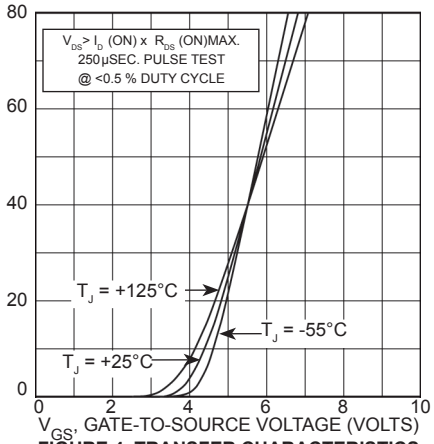


FIGURE 4, TRANSFER CHARACTERISTICS

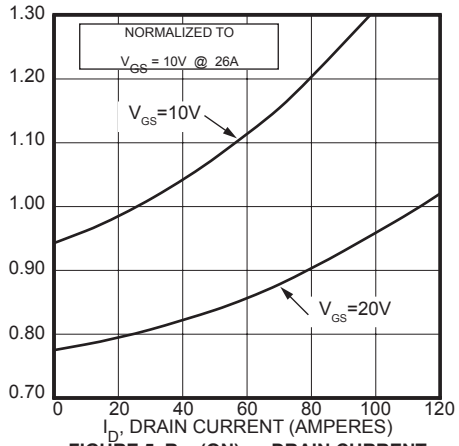


FIGURE 5, R_{DS}(ON) vs DRAIN CURRENT

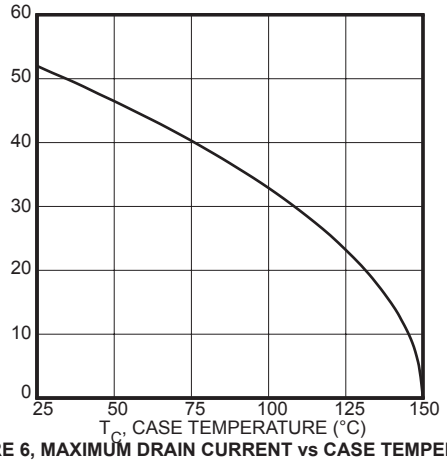


FIGURE 6, MAXIMUM DRAIN CURRENT vs CASE TEMPERATURE

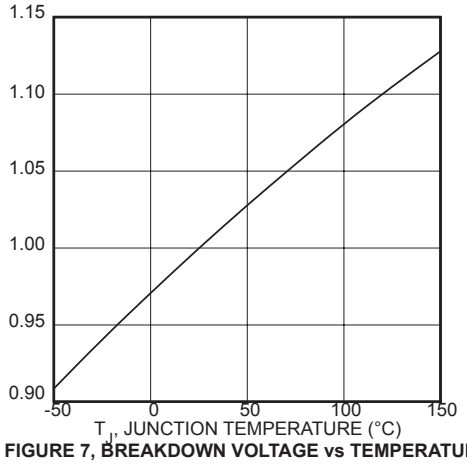


FIGURE 7, BREAKDOWN VOLTAGE vs TEMPERATURE

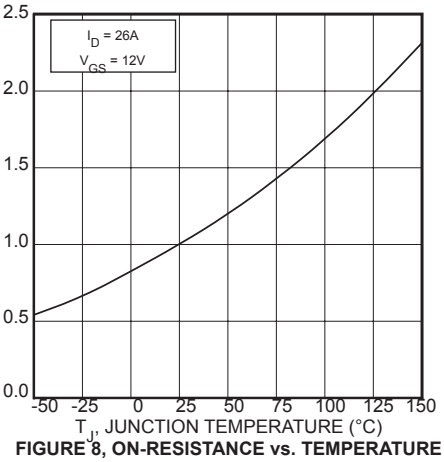


FIGURE 8, ON-RESISTANCE vs. TEMPERATURE

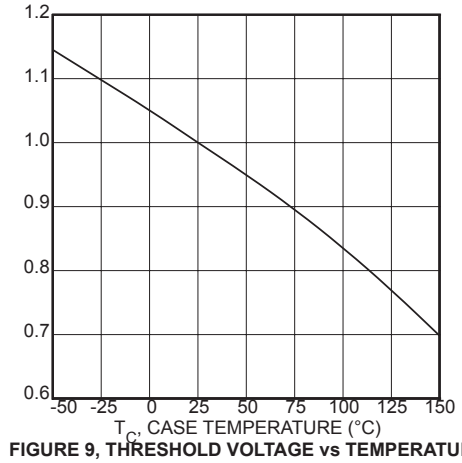


FIGURE 9, THRESHOLD VOLTAGE vs TEMPERATURE

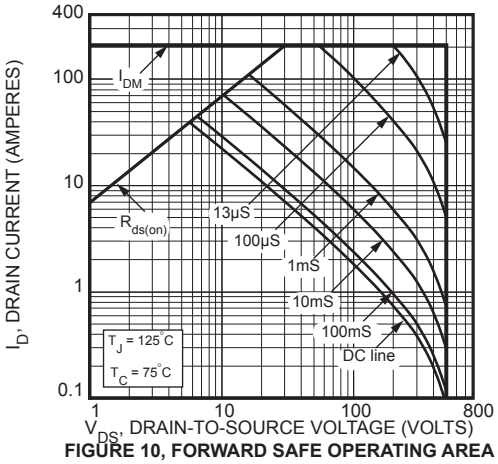


FIGURE 10, FORWARD SAFE OPERATING AREA

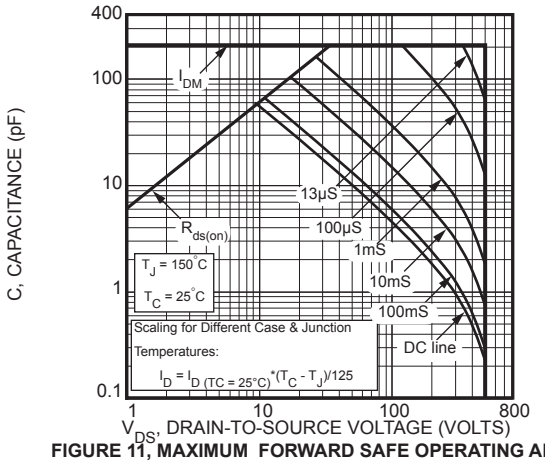


FIGURE 11, MAXIMUM FORWARD SAFE OPERATING AREA

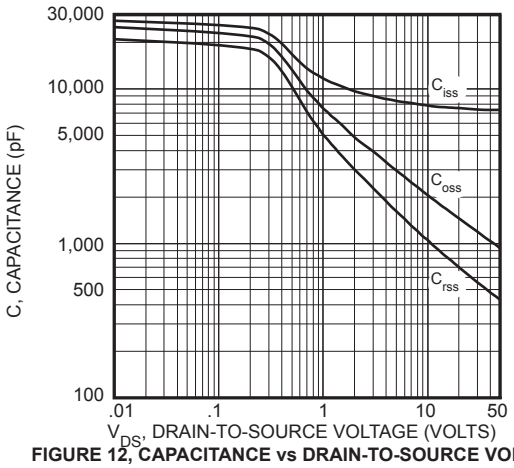
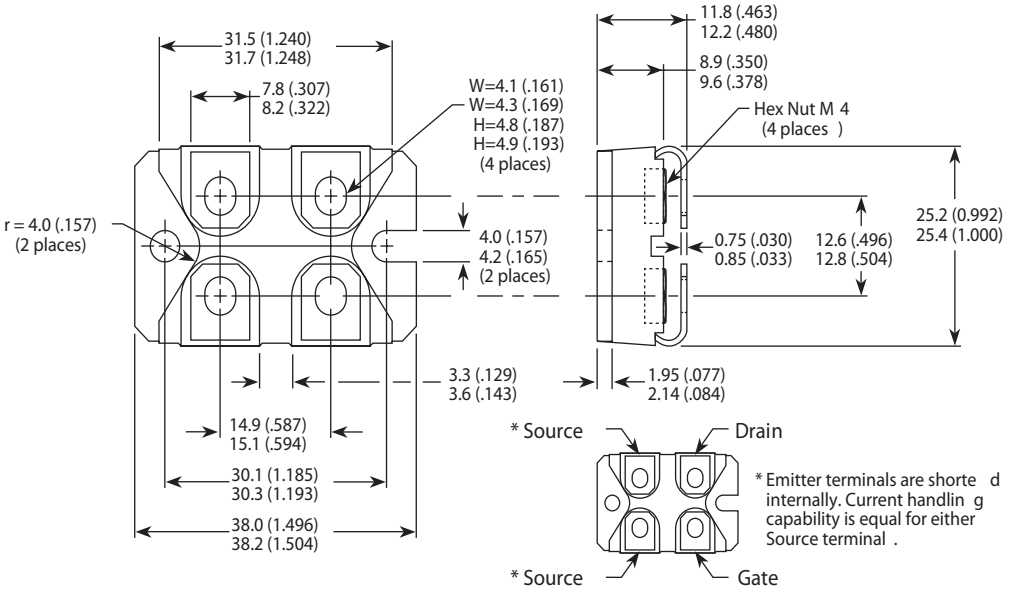


FIGURE 12, CAPACITANCE vs DRAIN-TO-SOURCE VOLTAGE

SOT-227 (ISOTOP®) Package Outline



Dimensions in Millimeters

Disclaimer: