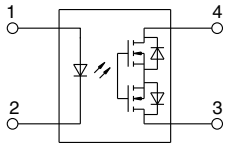
C×R type VSSOP package 60V and 100 V load voltage

PhotoMOS® RF VSSOP 1 Form A C×R (AQY22○○○T)

mm inch



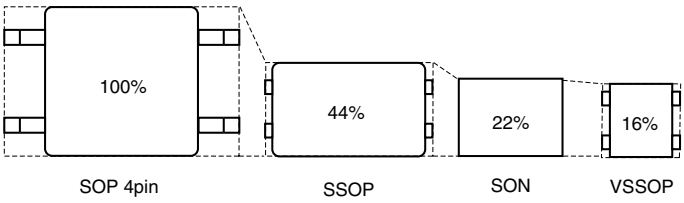
RoHS compliant

FEATURES

1. Miniature VSSOP package

4.6 mm² mounting area achieved. Approx. 29% less than previous product (SON type).

Contributes to the miniaturization of instruments and higher density mounting.



2. Load voltage: 60 V and 100 V

3. Low C×R

Low on resistance and low output capacitance available

• 60 V load voltage: AQY222R2T

Output capacitance: Typ. 27 pF, On resistance: Typ. 0.8Ω

• 100 V load voltage: AQY225R3T

Output capacitance: Typ. 5.8 pF, On resistance: Typ. 8.8Ω

TYPICAL APPLICATIONS

1. Measuring and testing equipment

IC tester, Probe card, Board tester and other testing equipment

2. Telecommunication equipment

*Does not support automotive applications.

TYPES

Type	Output rating*1		Part No. (Tape and reel packing style)*2		Packing quantity in the tape and reel
	Load voltage	Load current	Picked from the 1 and 4-pin side	Picked from the 2 and 3-pin side	
AC/DC dual use	60 V	400 mA	AQY222R2TY	AQY222R2TW	1,000 pcs.
	100 V	120 mA	AQY225R3TY	AQY225R3TW	

Notes: *1. Indicate the peak AC and DC values.
*2. Only tape and reel package is available.
For space reasons, only “2R2” or “5R3” is marked on the product as the part number.

RATING

1. Absolute maximum ratings (Ambient temperature: 25°C 77°F)

Item		Symbol	AQY222R2T	AQY225R3T	Remarks
Input side	LED forward current	I_F	50 mA		
	LED reverse voltage	V_R	5 V		
	Peak forward current	I_{FP}	1 A		f = 100 Hz, Duty factor = 0.1%
	Power dissipation	P_{in}	75 mW		
Output side	Load voltage (peak AC)	V_L	60 V	100 V	
	Continuous load current	I_L	0.4 A	0.12 A	Peak AC, DC
	Peak load current	I_{peak}	1.2 A	0.3 A	100 ms (1shot), V_L = DC
	Power dissipation	P_{out}	250 mW		
Total power dissipation		P_T	300 mW		
I/O isolation voltage		V_{iso}	200 Vrms		
Ambient temperature	Operating	T_{opr}	–40 to +85°C –40 to +185°F		(Non-icing at low temperatures)
	Storage	T_{stg}	–40 to +100°C –40 to +212°F		

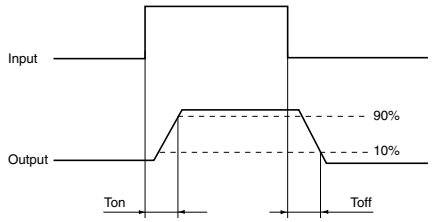
2. Electrical characteristics (Ambient temperature: 25°C 77°F)

Item			Symbol	AQY222R2T	AQY225R3T	Condition
Input	LED operate current	Typical	I_{Fon}	0.4 mA		AQY222R2T: I_L = 400 mA AQY225R3T: I_L = 80 mA
		Maximum		3 mA		
	LED turn off current	Minimum	I_{Foff}	0.1 mA		
		Typical		0.35 mA		
	LED dropout voltage	Typical	V_F	1.14 V (1.35 V at I_F = 50 mA)		I_F = 5 mA
		Maximum		1.5 V		
Output	On resistance	Typical	R_{on}	0.8 Ω	8.8 Ω	AQY222R2T: I_F = 5 mA, I_L = 400 mA AQY225R3T: I_F = 5 mA, I_L = 80 mA Within 1 s
		Maximum		1.25 Ω	14 Ω	
	Output capacitance	Typical	C_{out}	27 pF	5.8 pF	I_F = 0 mA, V_B = 0 V, f = 1 MHz
		Maximum		40 pF	8 pF	
	Off state leakage current	Typical	I_{Leak}	—	0.01 nA	I_F = 0 mA, V_L = Max.
		Maximum		*10 nA		
Transfer characteristics	Turn on time**	Typical	T_{on}	0.12 ms	0.04 ms	AQY222R2T: I_F = 5 mA, V_L = 10 V, R_L = 100 Ω AQY225R3T: I_F = 5 mA, V_L = 10 V, R_L = 125 Ω
		Maximum		0.5 ms		
	Turn off time**	Typical	T_{off}	0.08 ms	0.05 ms	
		Maximum		0.2 ms		
	I/O capacitance	Typical	C_{iso}	0.4 pF		f = 1 MHz, V_B = 0 V
		Maximum		1.5 pF		

Note: Variation possible through combinations of output capacitance and on resistance. For more information, please contact our sales office in your area.

*Available as custom orders (1 nA or less)

**Turn on/Turn off time



3. Recommended operating conditions (Ambient temperature: 25°C 77°F)

Please use under recommended operating conditions to obtain expected characteristics.

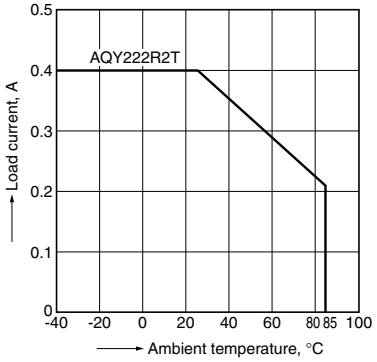
Item		Symbol	Min.	Max.	Unit
LED current		I_F	5	30	mA
AQY222R2T	Load voltage (Peak AC)	V_L	—	30	V
	Continuous load current	I_L	—	0.4	A
AQY225R3T	Load voltage (Peak AC)	V_L	—	50	V
	Continuous load current	I_L	—	0.12	A

■ **These products are not designed for automotive use.**
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

REFERENCE DATA

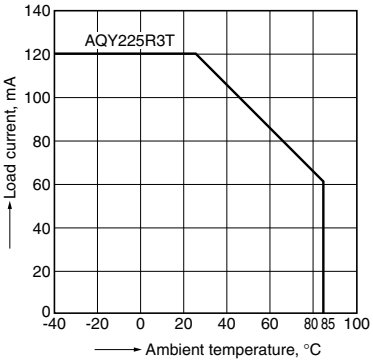
1.-(1) Load current vs. ambient temperature characteristics

Allowable ambient temperature: –40 to +85°C
–40 to +185°F



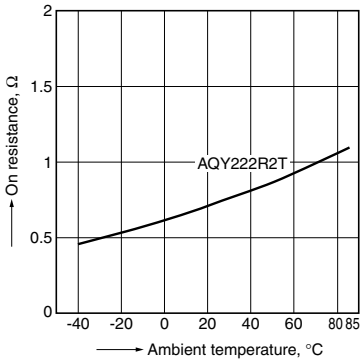
1.-(2) Load current vs. ambient temperature characteristics

Allowable ambient temperature: –40 to +85°C
–40 to +185°F



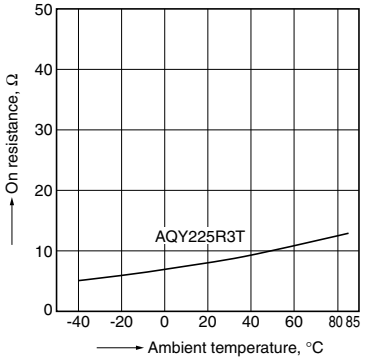
2.-(1) On resistance vs. ambient temperature characteristics

Measured portion: between terminals 3 and 4
LED current: 5 mA; Load voltage: 10V (DC)
Continuous load current: Max. (DC)



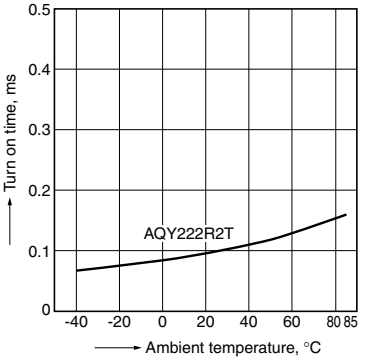
2.-(2) On resistance vs. ambient temperature characteristics

Measured portion: between terminals 3 and 4;
LED current: 5 mA; Load voltage: 10V (DC);
Continuous load current: 80mA (DC)



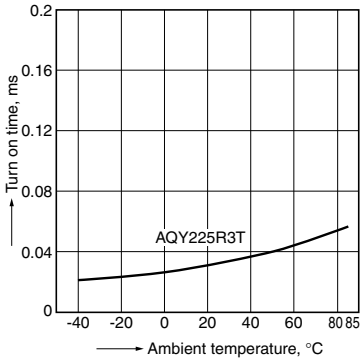
3.-(1) Turn on time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 10V (DC);
Continuous load current: 100mA (DC)



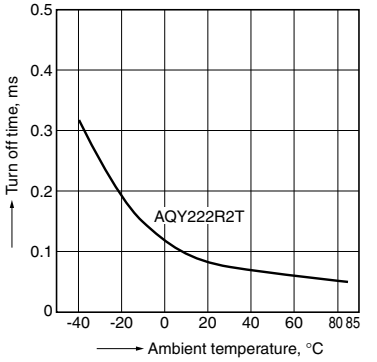
3.-(2) Turn on time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 10V (DC);
Continuous load current: 80mA (DC)



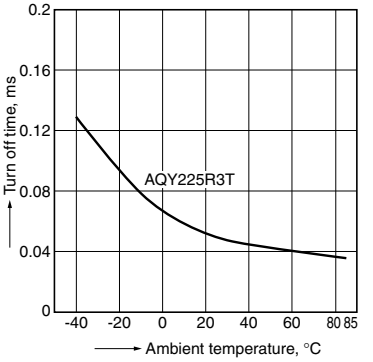
4.-(1) Turn off time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 10V (DC);
Continuous load current: 100mA (DC)



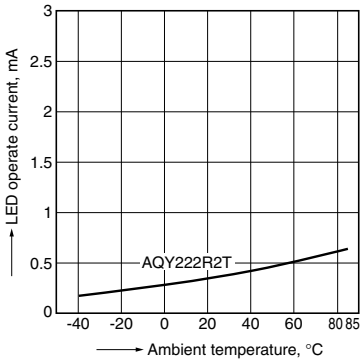
4.-(2) Turn off time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 10V (DC);
Continuous load current: 80mA (DC)

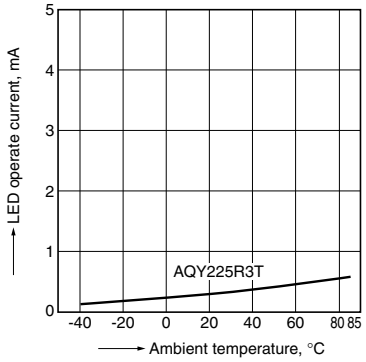


5.-(1) LED operate current vs. ambient temperature characteristics

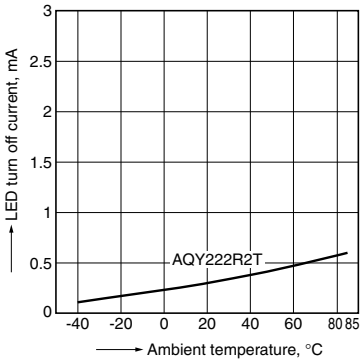
Load voltage: 10V (DC);
Continuous load current: 400mA (DC)



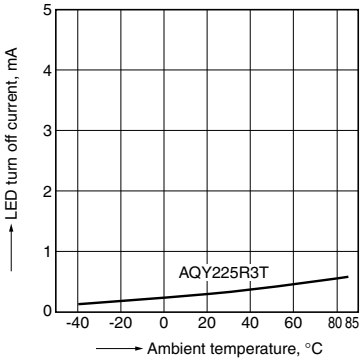
5.-(2) LED operate current vs. ambient temperature characteristics
Load voltage: 10V (DC);
Continuous load current: 80mA (DC)



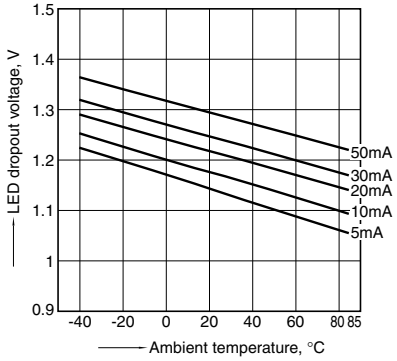
6.-(1) LED turn off current vs. ambient temperature characteristics
Load voltage: 10V (DC);
Continuous load current: 400mA (DC)



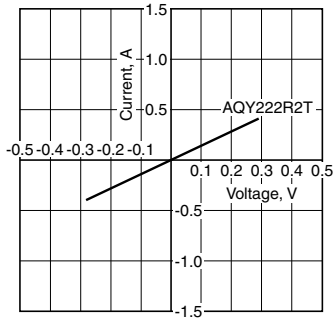
6.-(2) LED turn off current vs. ambient temperature characteristics
Load voltage: 10V (DC);
Continuous load current: 80mA (DC)



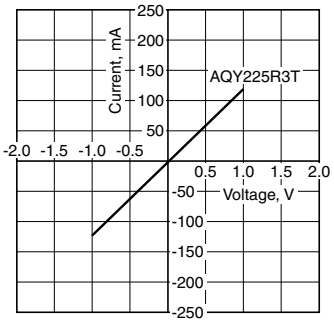
7. LED dropout voltage vs. ambient temperature characteristics
LED current: 5 to 50 mA



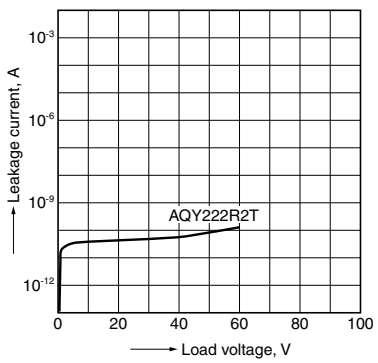
8.-(1) Current vs. voltage characteristics of output at MOS portion
Measured portion: between terminals 3 and 4;
Ambient temperature: 25°C 77°F



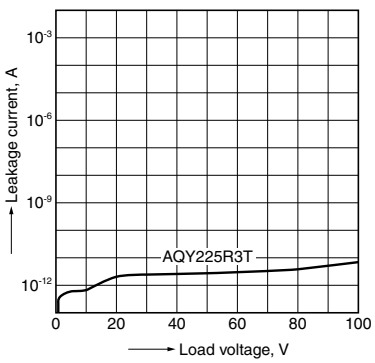
8.-(2) Current vs. voltage characteristics of output at MOS portion
Measured portion: between terminals 3 and 4;
Ambient temperature: 25°C 77°F



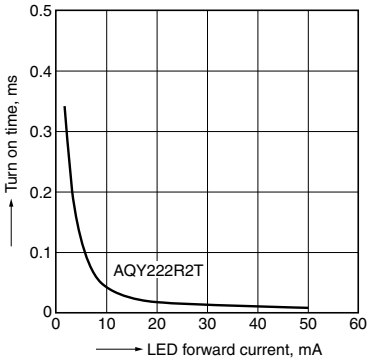
9.-(1) Off state leakage current vs. load voltage characteristics
Measured portion: between terminals 3 and 4;
Ambient temperature: 25°C 77°F



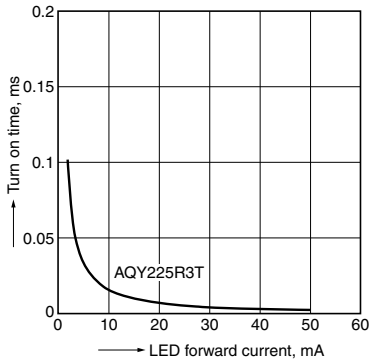
9.-(2) Off state leakage current vs. load voltage characteristics
Measured portion: between terminals 3 and 4;
Ambient temperature: 25°C 77°F



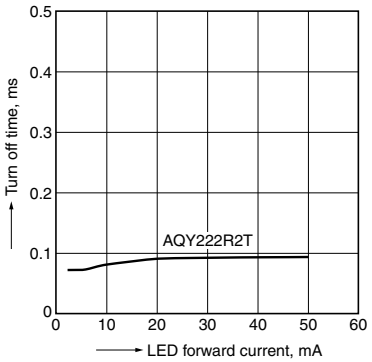
10.-(1) Turn on time vs. LED forward current characteristics
Measured portion: between terminals 3 and 4;
Load voltage: 10V (DC); Continuous load current: 100mA (DC); Ambient temperature: 25°C 77°F



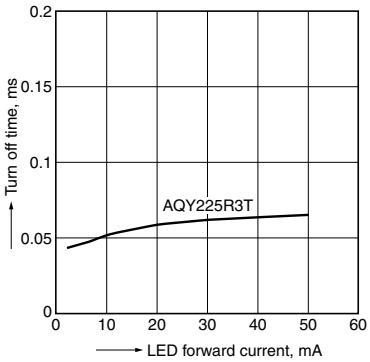
10.-(2) Turn on time vs. LED forward current characteristics
Measured portion: between terminals 3 and 4;
Load voltage: 10V (DC); Continuous load current: 80mA (DC); Ambient temperature: 25°C 77°F



11.-(1) Turn off time vs. LED forward current characteristics
Measured portion: between terminals 3 and 4;
Load voltage: 10V (DC); Continuous load current: 100mA (DC); Ambient temperature: 25°C 77°F

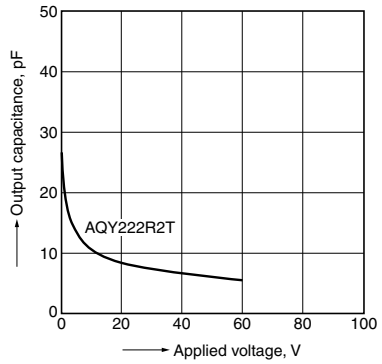


11.-(2) Turn off time vs. LED forward current characteristics
Measured portion: between terminals 3 and 4;
Load voltage: 10V (DC); Continuous load current: 80mA (DC); Ambient temperature: 25°C 77°F



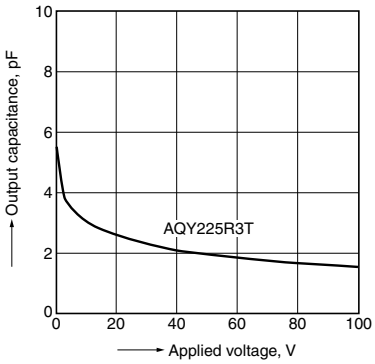
12.-(1) Output capacitance vs. applied voltage characteristics

Measured portion: between terminals 3 and 4;
Frequency: 1 MHz;
Ambient temperature: 25°C 77°F



12.-(2) Output capacitance vs. applied voltage characteristics

Measured portion: between terminals 3 and 4;
Frequency: 1 MHz;
Ambient temperature: 25°C 77°F



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