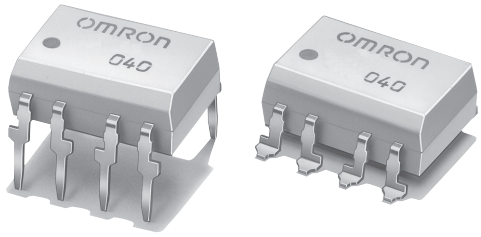
MOS FET Relays
G3VM-355C/CR/F/FR

MOS FET Relay with Both SPST-NO and SPST-NC Contacts Incorporated in a Single DIP Package. General-purpose Models Added.

- SPST-NO/SPST-NC models included in the 350-V load series.
- Continuous load current of 120 mA.
- Dielectric strength of 2,500 Vrms between I/O.
- General-purpose models (high ON resistance) added.
- RoHS Compliant.



Note: The actual product is marked differently from the image shown here.

■ Application Examples

- Measurement devices
- Security systems
- Amusement machines

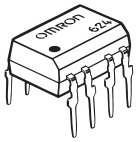
■ List of Models

Contact form	Terminals	Load voltage (peak value)	Model	Number per stick	Number per tape
SPST-NO/ SPST-NC	PCB terminals	350 VAC	**G3VM-355CR**	50	---
			G3VM-355C		
	Surface-mounting terminals		**G3VM-355FR**		
			G3VM-355F		
			G3VM-355FR(TR)	---	1,500
			G3VM-355F(TR)		

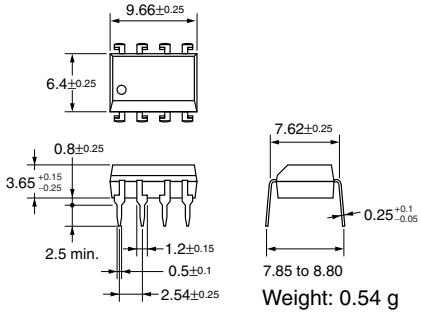
■ Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3VM-355C/CR

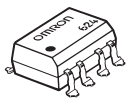


Note: The actual product is marked differently from the image shown here.

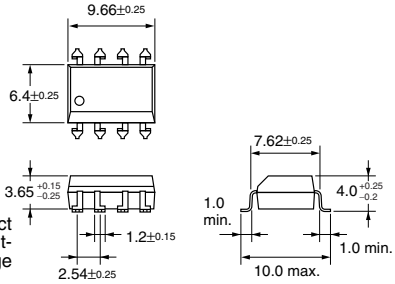


Weight: 0.54 g

G3VM-355F/FR



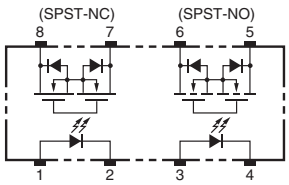
Note: The actual product is marked differently from the image shown here.



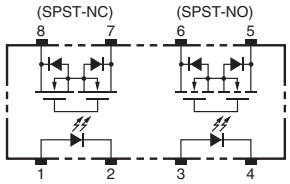
Weight: 0.54 g

■ Terminal Arrangement/Internal Connections (Top View)

G3VM-355C/CR

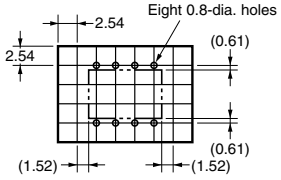


G3VM-355F/FR



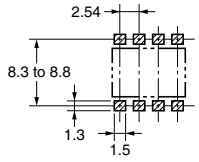
■ PCB Dimensions (Bottom View)

G3VM-355C/CR



■ Actual Mounting Pad Dimensions (Recommended Value, Top View)

G3VM-355F/FR



■ Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	Rating	Unit	Measurement conditions
Input	LED forward current	I_F	50	mA	
	Repetitive peak LED forward current	I_{FP}	1	A	100 μs pulses, 100 pps
	LED forward current reduction rate	ΔI_F/°C	–0.5	mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	5	V	
	Connection temperature	T_j	125	°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	350	V	
	Continuous load current (AC peak/DC)	I_O	120 (100)	mA	
	ON current reduction rate	ΔI_{ON}/°C	–1.2 (–1)	mA/°C	Ta ≥ 25°C
	Connection temperature	T_j	125	°C	
Dielectric strength between input and output (See note 1.)		V_{I-O}	2,500	V_{rms}	AC for 1 min
Operating temperature		T_a	–40 to +85	°C	With no icing or condensation
Storage temperature		T_{stg}	–55 to +125	°C	With no icing or condensation
Soldering temperature (10 s)		---	260	°C	10 s

Values in parentheses are for the G3VM-355C/F

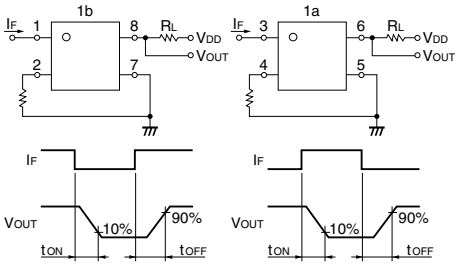
Note: **1.** The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■ Electrical Characteristics (Ta = 25°C)

Item			Symbol	Minimum	Typical	Maximum	Unit	Measurement conditions
Input	LED forward voltage		V_F	1.0	1.15	1.3	V	I_F = 10 mA
	Reverse current		I_R	---	---	10	μA	V_R = 5 V
	Capacity between terminals		C_T	---	30	---	pF	V = 0, f = 1 MHz
	Trigger LED forward current		I_{FT}	---	1	3	mA	SPST-NO: I_O = 120 mA (100 mA)
								SPST-NC: I_{OFF} = 10 μA
Output	Maximum resistance with output ON		R_{ON}	---	15 (40)	25 (50)	Ω	SPST-NO: I_F = 5 mA, I_O = 120 mA (100 mA)
								SPST-NC: I_F = 0 mA, I_O = 120 mA (100 mA)
	Current leakage when the relay is open		I_{LEAK}	---	0.0015 NO (0.006) 0.0105 NC (0.003)	1.0	μA	V_{OFF} = 350 V
	Capacity between terminals		C_{OFF}	---	65 (30)	---	pF	V = 0, f = 1MHz (NO) V = 0, f = 1MHz, I_F = 5 mA (NC)
Capacity between I/O terminals			C_{I-O}	---	0.8	---	pF	f = 1 MHz, V_s = 0 V
Insulation resistance			R_{I-O}	1,000	---	---	MΩ	V_{I-O} = 500 VDC, R_{oH} ≤ 60%
Turn-ON time		SPST-NO	t_{ON}	---	0.18 (0.3)	1.0 (1.0)	ms	I_F = 5 mA, R_L = 200 Ω, V_{DD} = 20 V (See note 2.)
		SPST-NC		---	0.15 (0.25)	1.0 (1.0)	ms	
Turn-OFF time		SPST-NO	t_{OFF}	---	0.11 (0.15)	1.0 (1.0)	ms	
		SPST-NC		---	0.7 (0.5)	3.0 (1.0)	ms	

Values in parentheses are for the G3VM-355C/F

Note: **2.** Turn-ON and Turn-OFF Times



■ Recommended Operating Conditions

Use the G3VM under the following conditions so that the Relay will operate properly.

Item	Symbol	Minimum	Typical	Maximum	Unit
Load voltage (AC peak/DC)	V_{DD}	---	---	280	V
Operating LED forward current	I_F	5	---	25	mA
Continuous load current (AC peak/DC)	I_O	---	---	120 (100)	mA
Operating temperature	T_a	– 20	---	65	°C

Values in parentheses are for the G3VM-355C/F

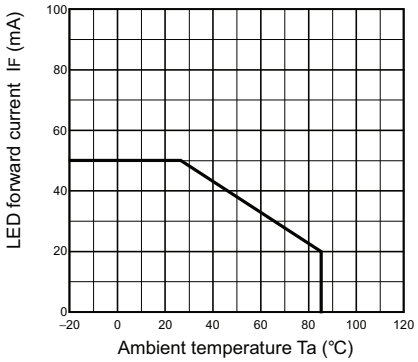
■ Engineering Data

G3VM-355C/F

Common Characteristics; SPST-NO / SPST-NC

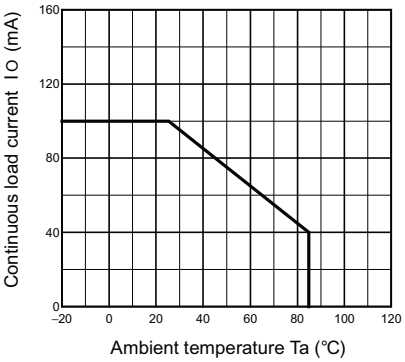
LED forward current vs. Ambient temperature

I_F - Ta



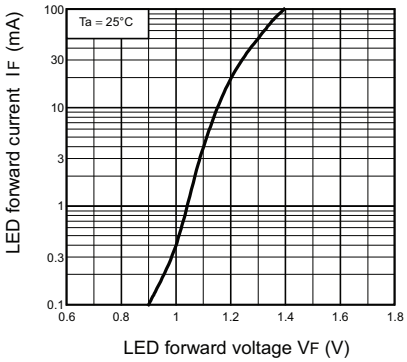
Continuous load current vs. Ambient temperature

I_O - Ta



LED forward current vs. LED forward voltage

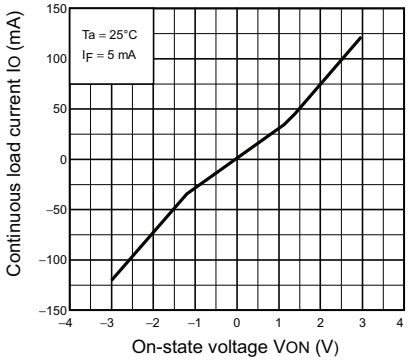
I_F - V_F



Characteristics; SPST-NO

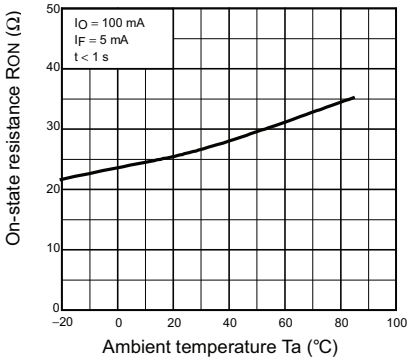
Continuous load current vs. On-state voltage

I_O - V_{ON}



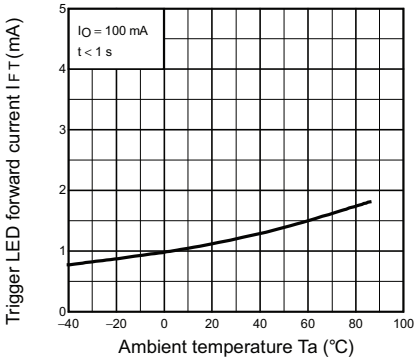
On-state resistance vs. Ambient temperature

R_{ON} - Ta



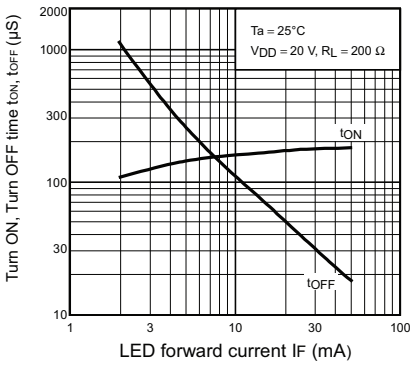
Trigger LED forward current vs. Ambient temperature

I_{FT} - Ta



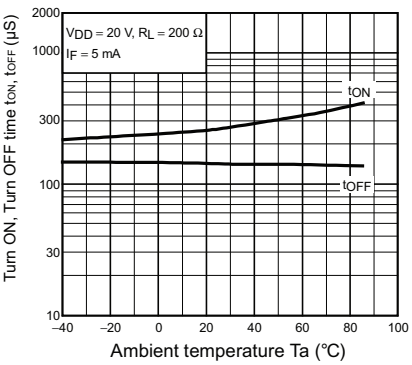
Turn ON, Turn OFF time vs. LED forward current

t_{ON}, t_{OFF} - I_F



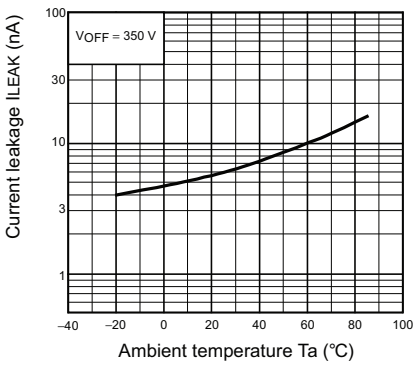
Turn ON, Turn OFF time vs. Ambient temperature

t_{ON}, t_{OFF} - Ta



Current leakage vs. Ambient temperature

I_{LEAK} – Ta



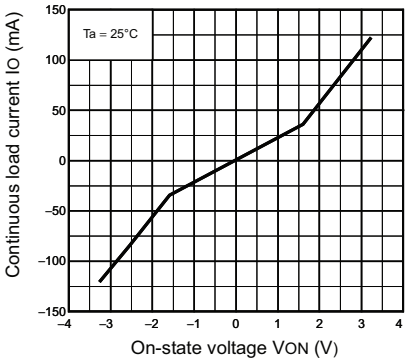
■ Engineering Data

G3VM-355C/F (continued)

Characteristics; SPST-NC

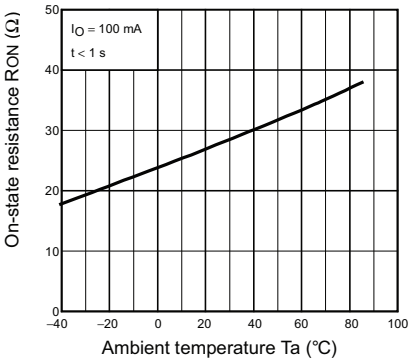
Continuous load current vs. On-state voltage

I_O - V_{ON}



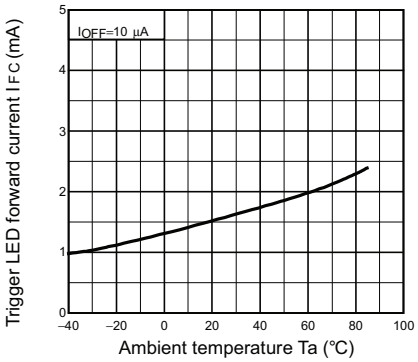
On-state resistance vs. Ambient temperature

R_{ON} - Ta



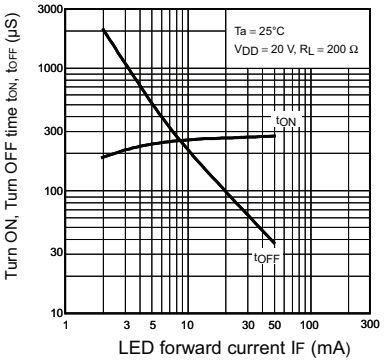
Trigger LED forward current vs. Ambient temperature

I_{FC} - Ta



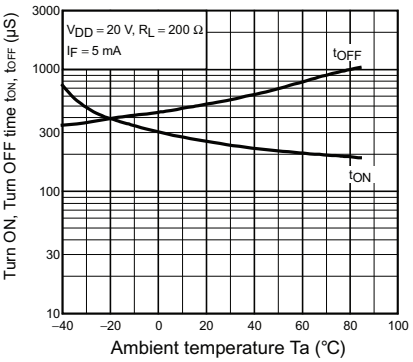
Turn ON, Turn OFF time vs. LED forward current

t_{ON}, t_{OFF} - I_F



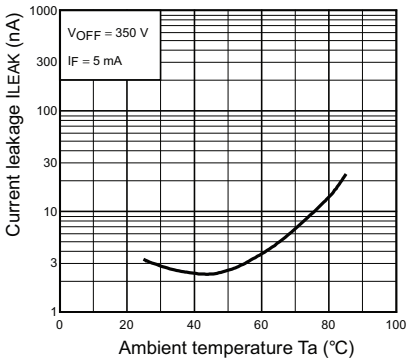
Turn ON, Turn OFF time vs. Ambient temperature

t_{ON}, t_{OFF} - Ta



Current leakage vs. Ambient temperature

I_{LEAK} – Ta



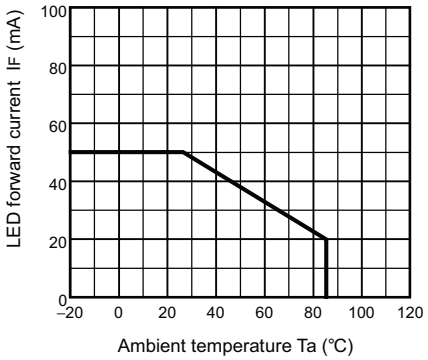
■ Engineering Data

G3VM-355CR/FR

Common Characteristics; SPST-NO / SPST-NC

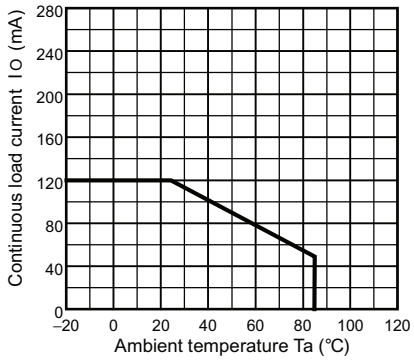
LED forward current vs. Ambient temperature

I_F - Ta



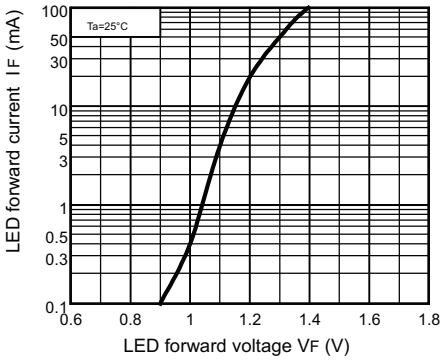
Continuous load current vs. Ambient temperature

I_O - Ta



LED forward current vs. LED forward voltage

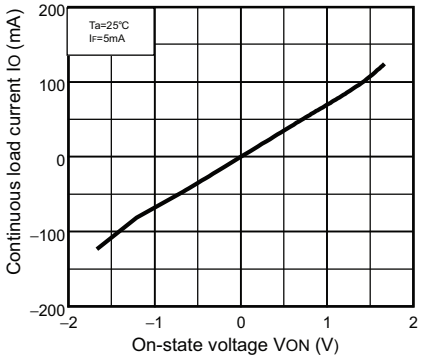
I_F - V_F



Characteristics; SPST-NO

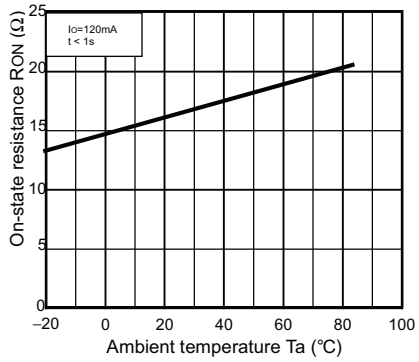
Continuous load current vs. On-state voltage

I_O - V_{ON}



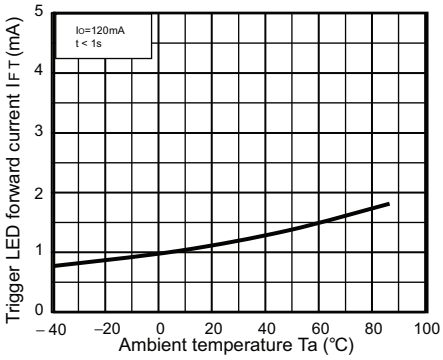
On-state resistance vs. Ambient temperature

R_{ON} - Ta



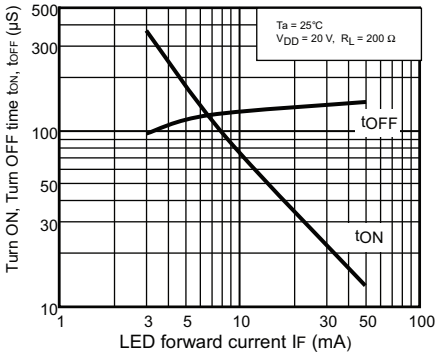
Trigger LED forward current vs. Ambient temperature

I_{FT} - Ta



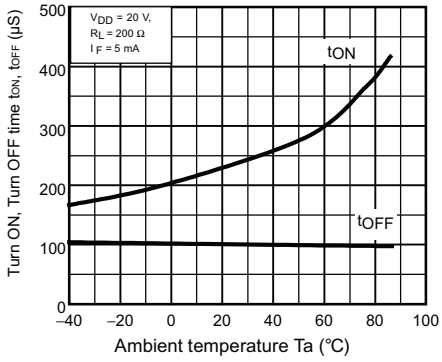
Turn ON, Turn OFF time vs. LED forward current

t_{ON}, t_{OFF} - I_F



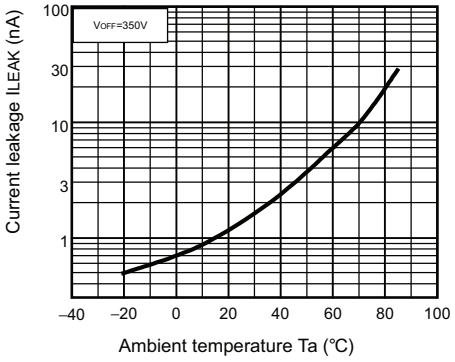
Turn ON, Turn OFF time vs. Ambient temperature

t_{ON}, t_{OFF} - Ta



Current leakage vs. Ambient temperature

I_{LEAK} – Ta



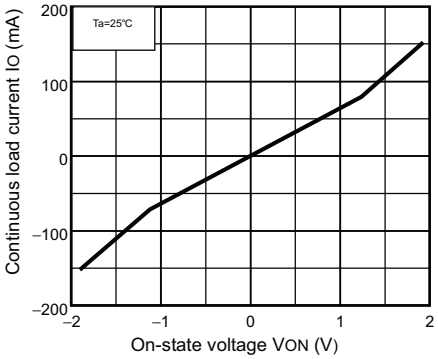
■ Engineering Data

G3VM-355CR/FR (continued)

Characteristics; SPST-NC

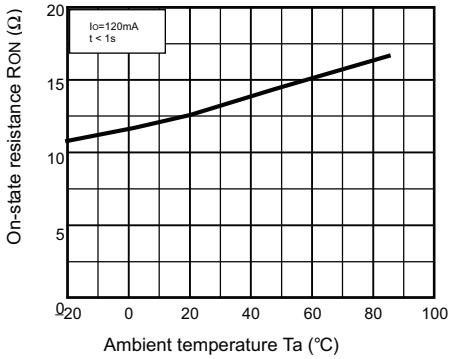
Continuous load current vs. On-state voltage

I_O - V_{ON}



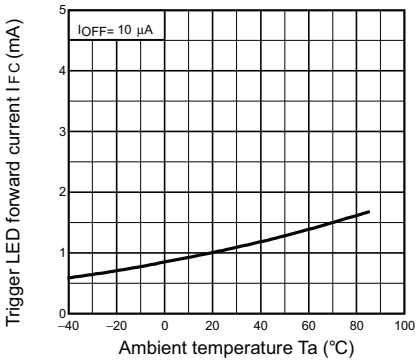
On-state resistance vs. Ambient temperature

R_{ON} - Ta



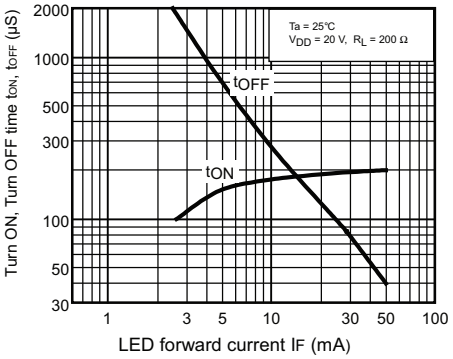
Trigger LED forward current vs. Ambient temperature

I_{FC} - Ta



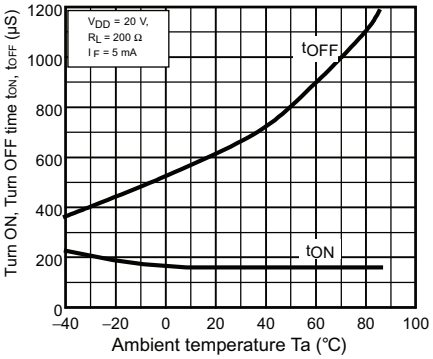
Turn ON, Turn OFF time vs. LED forward current

t_{ON}, t_{OFF} - I_F



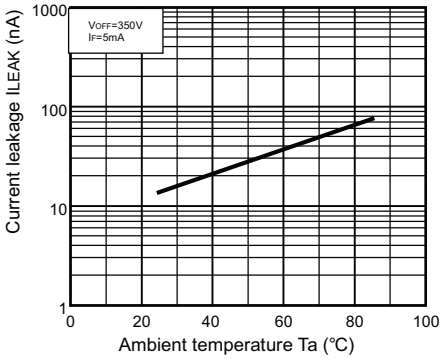
Turn ON, Turn OFF time vs. Ambient temperature

t_{ON}, t_{OFF} - Ta

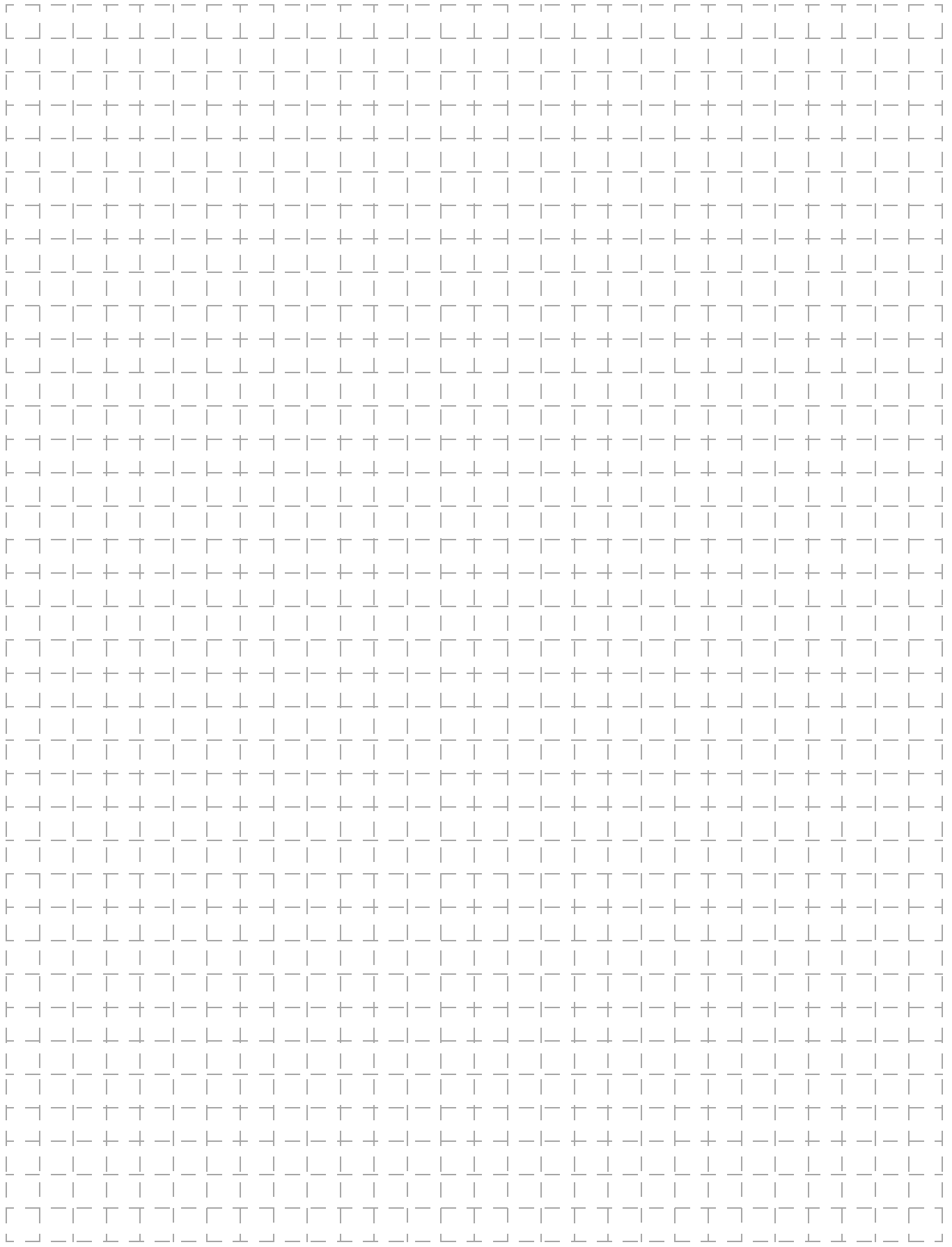


Current leakage vs. Ambient temperature

I_{LEAK} – Ta



MEMO



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ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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