

# MOS FET Relays G3VM-355J/JR

**MOS FET Relay with Both SPST-NO and SPST-NC Contacts Incorporated in a Single SOP Package. General-purpose (high On-resistance) Series Added.**

- SPST-NO/SPST-NC models with an 8-pin SOP package in the 350-V load voltage series.
- Continuous load current of 120 mA.
- Dielectric strength of 1,500 Vrms between I/O.
- RoHS Compliant.

**Application Examples**

- Broadband systems
- Measurement devices and Data loggers
- Amusement machines



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

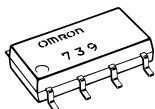
**List of Models**

Contact form	Terminals	Load voltage (peak value)	Model	Number per stick	Number per tape
SPST-NO/ SPST-NC	Surface-mounting terminals	350 VAC	G3VM-355JR	50	---
			G3VM-355J		
			G3VM-355JR(TR)	---	2,500
			G3VM-355J(TR)		

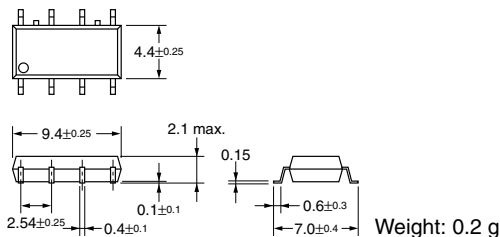
**Dimensions**

**Note:** All units are in millimeters unless otherwise indicated.

G3VM-355J/JR

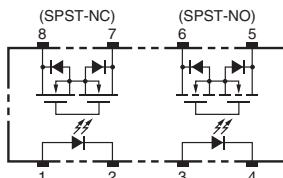


**Note:** The actual product is marked differently from the image shown here.



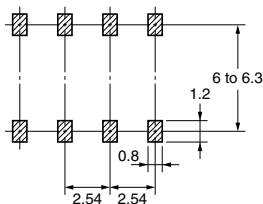
**Terminal Arrangement/Internal Connections (Top View)**

G3VM-355J/JR



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

G3VM-355J/JR



■ 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 $\mu$ s pulses, 100 pps
	LED forward current reduction rate	$\Delta I_F/^\circ\text{C}$	-0.5	mA/ $^\circ\text{C}$	$T_a \geq 25^\circ\text{C}$
	LED reverse voltage	$V_R$	5	V	
	Connection temperature	$T_j$	125	$^\circ\text{C}$	
Output	Load voltage (AC peak/DC)	$V_{OFF}$	350	V	
	Continuous load current	$I_O$	120 (90)	mA	
	ON current reduction rate	$\Delta I_{ON}/^\circ\text{C}$	-1.2 (-0.9)	mA/ $^\circ\text{C}$	$T_a \geq 25^\circ\text{C}$
	Connection temperature	$T_j$	125	$^\circ\text{C}$	
Dielectric strength between input and output (See note 1.)		$V_{I-O}$	1,500	$V_{rms}$	AC for 1 min
Operating temperature		$T_a$	-40 to +85	$^\circ\text{C}$	With no icing or condensation
Storage temperature		$T_{stg}$	-55 to +125	$^\circ\text{C}$	With no icing or condensation
Soldering temperature (10 s)		---	260	$^\circ\text{C}$	10 s

**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.

Values inside parenthesis ( ) are for G3VM-355J

■ Electrical Characteristics (Ta = 25°C)

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

Values inside parenthesis ( ) are for G3VM-355J

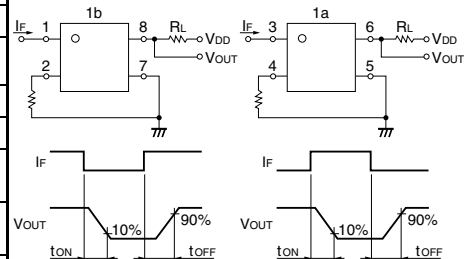
■ Recommended Operating Conditions

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	10	25	mA
Continuous load current (AC peak/DC)	$I_O$	---	---	120 (90)	mA
Operating temperature	$T_a$	- 20	---	65	$^\circ\text{C}$

Values inside parenthesis ( ) are for G3VM-355J

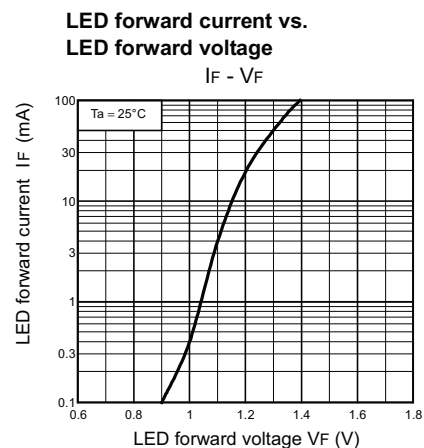
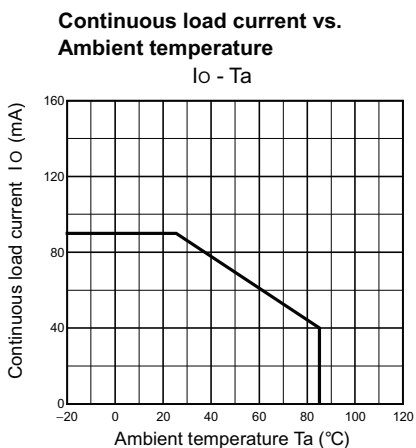
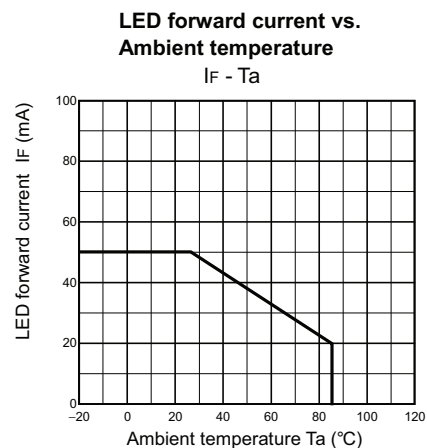
**Note:** 2. Turn-ON and Turn-OFF Times



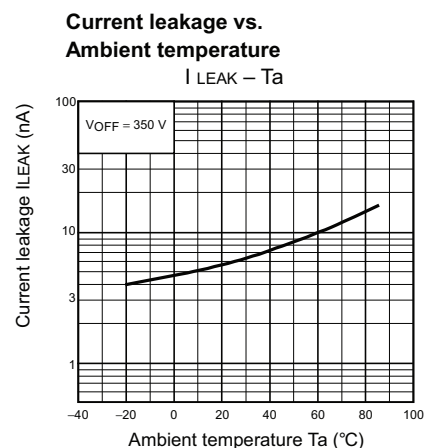
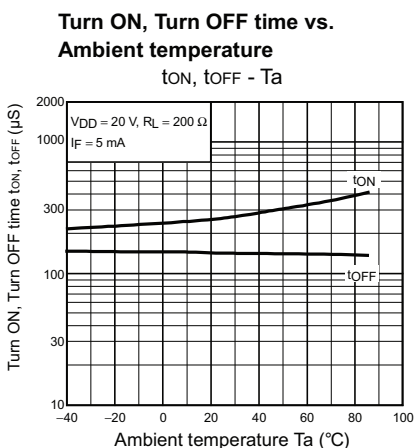
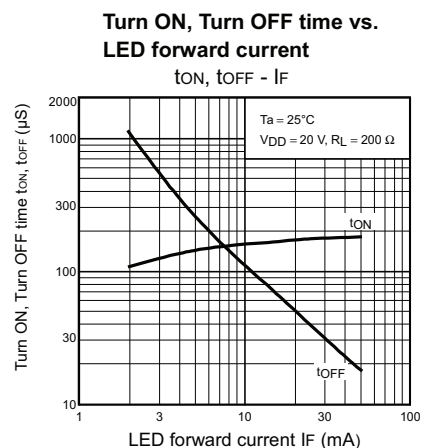
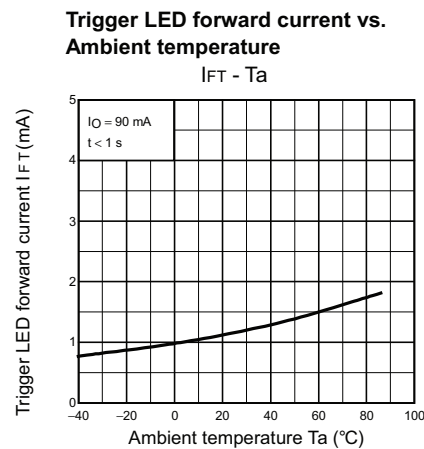
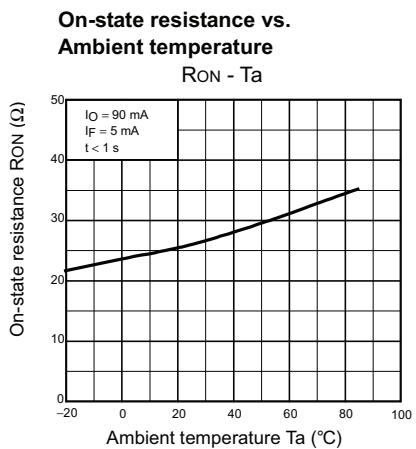
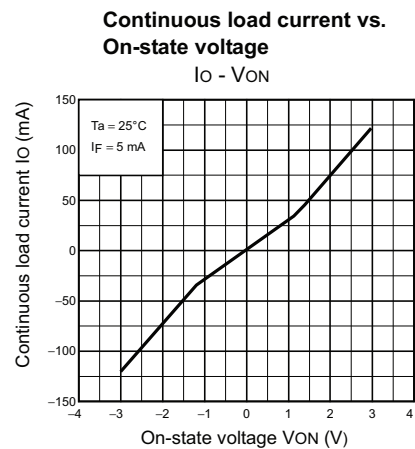
■ Engineering Data

G3VM-355J

Common Characteristics; SPST-NO / SPST-NC

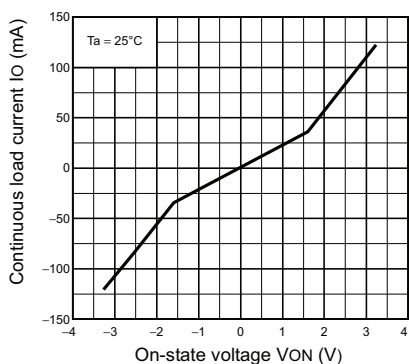


Characteristics; SPST-NO

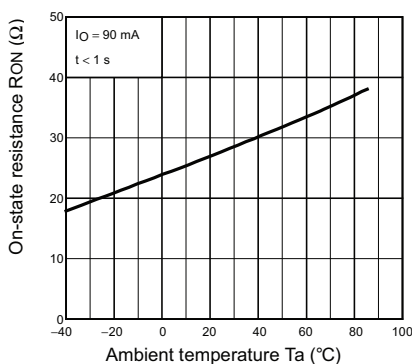


■ Engineering Data  
**G3VM-355J (continued)**  
 Characteristics; SPST-NC

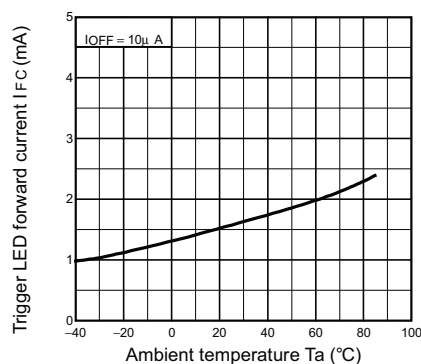
**Continuous load current vs. On-state voltage**  
 $I_O - V_{ON}$



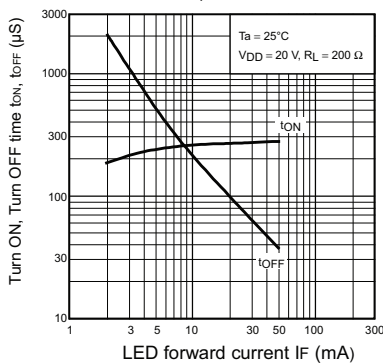
**On-state resistance vs. Ambient temperature**  
 $R_{ON} - T_a$



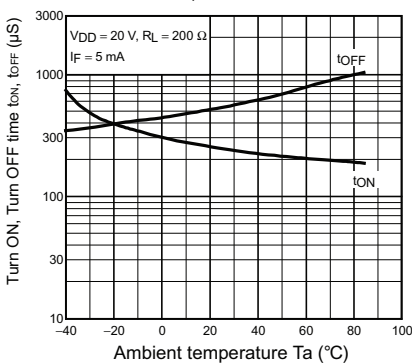
**Trigger LED forward current vs. Ambient temperature**  
 $I_{FC} - T_a$



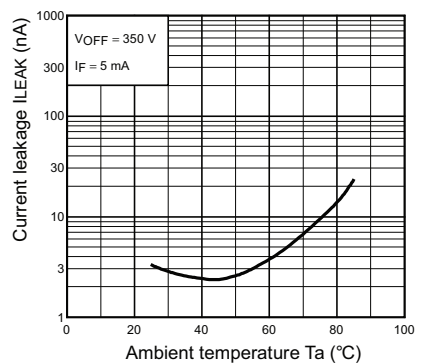
**Turn ON, Turn OFF time vs. LED forward current**  
 $t_{ON}, t_{OFF} - I_F$



**Turn ON, Turn OFF time vs. Ambient temperature**  
 $t_{ON}, t_{OFF} - T_a$



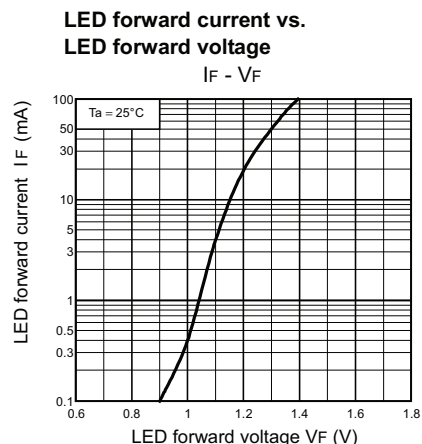
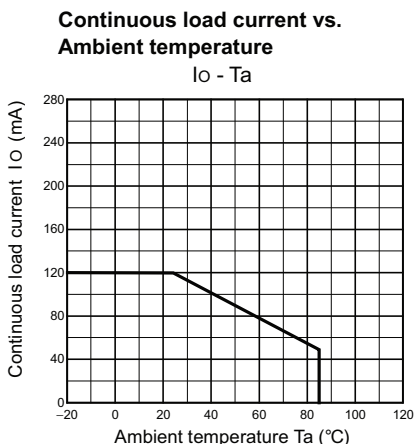
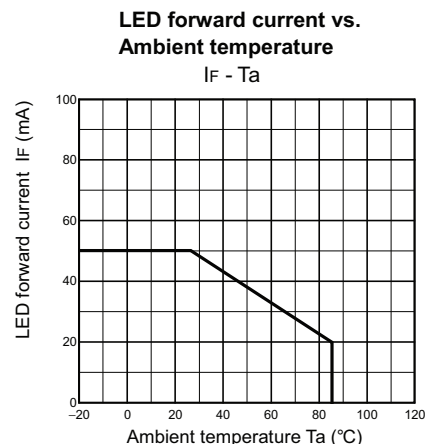
**Current leakage vs. Ambient temperature**  
 $I_{LEAK} - T_a$



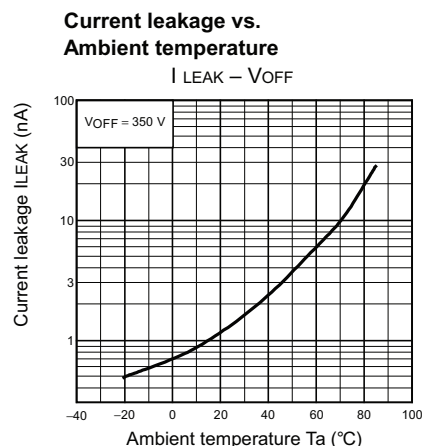
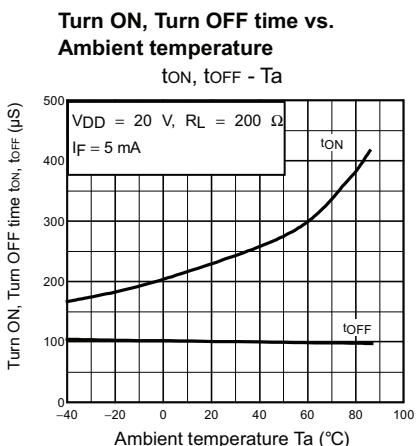
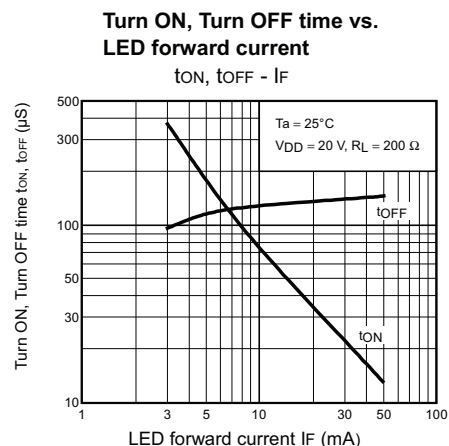
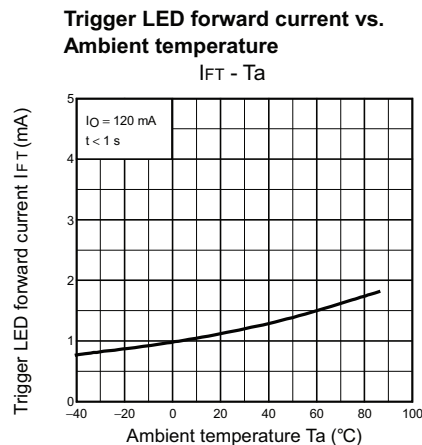
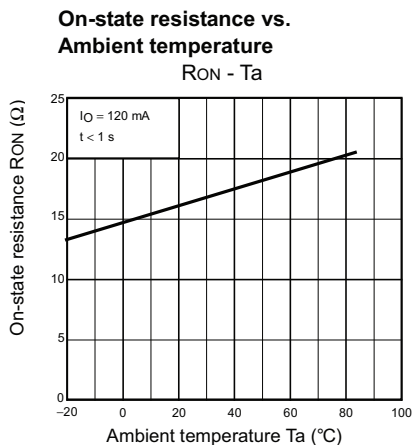
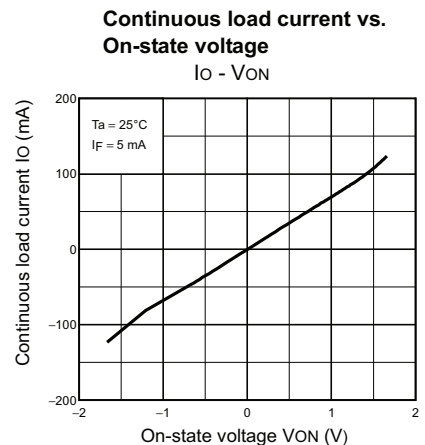
■ Engineering Data

G3VM-355JR

Common Characteristics; SPST-NO / SPST-NC

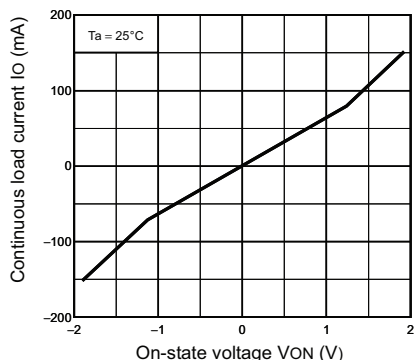


Characteristics; SPST-NO

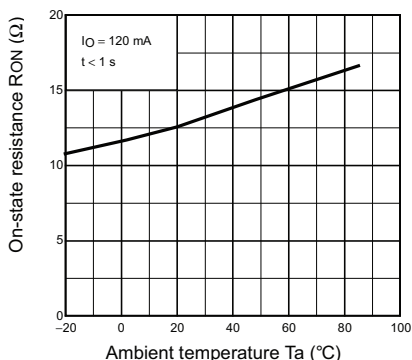


■ Engineering Data  
**G3VM-355JR (continued)**  
 Characteristics; SPST-NC

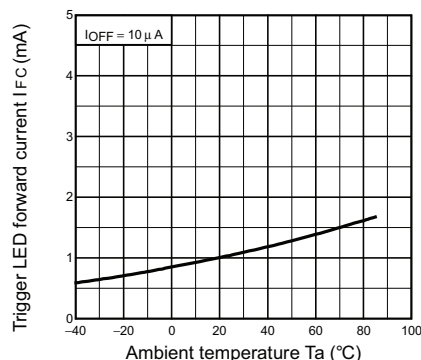
**Continuous load current vs. On-state voltage**  
 $I_O - V_{ON}$



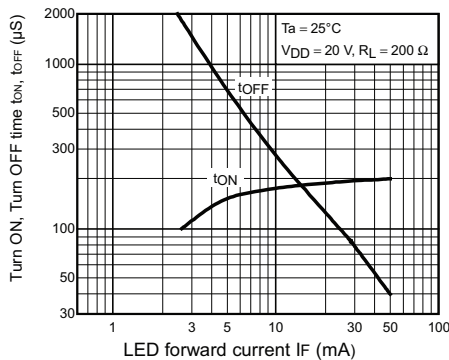
**On-state resistance vs. Ambient temperature**  
 $R_{ON} - T_a$



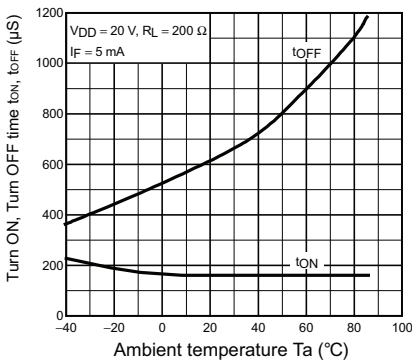
**Trigger LED forward current vs. Ambient temperature**  
 $I_{FC} - T_a$



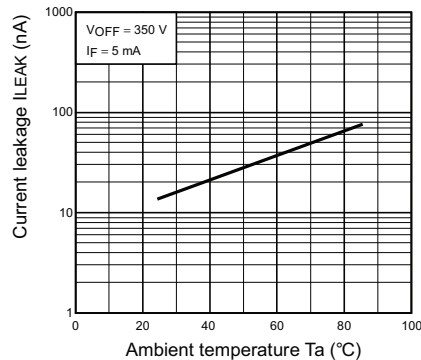
**Turn ON, Turn OFF time vs. LED forward current**  
 $t_{ON}, t_{OFF} - I_F$

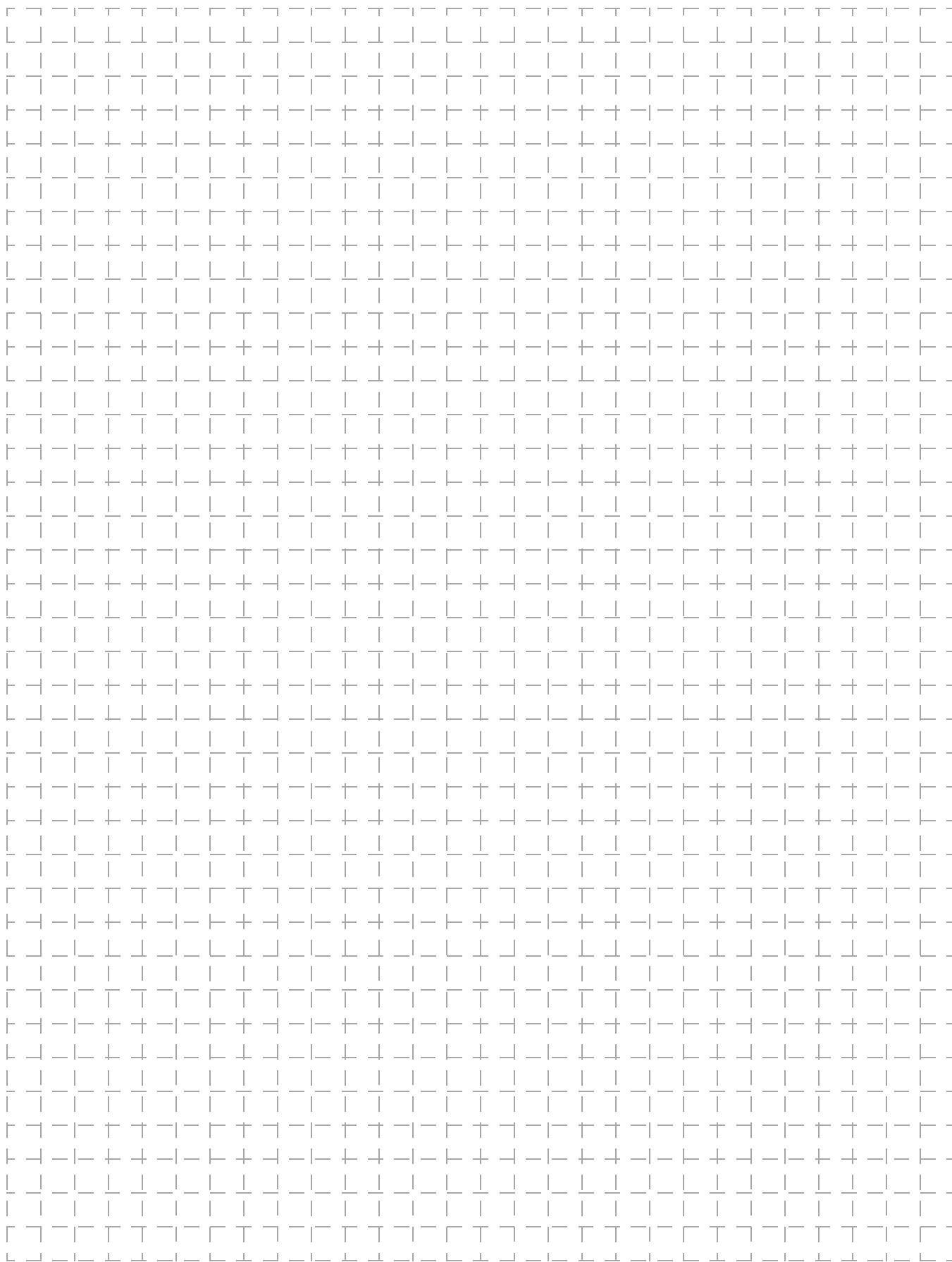


**Turn ON, Turn OFF time vs. Ambient temperature**  
 $t_{ON}, t_{OFF} - T_a$



**Current leakage vs. Ambient temperature**  
 $I_{LEAK} - T_a$





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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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**OMRON ELECTRONIC  
COMPONENTS LLC**

55 E. Commerce Drive, Suite B  
Schaumburg, IL 60173

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