

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.

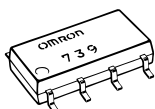
List of Models

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)		

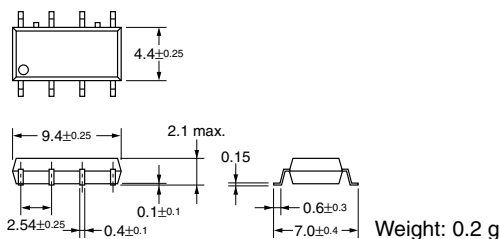
Dimensions

Note: All units are in millimeters unless otherwise indicated.

G3VM-355J/JR

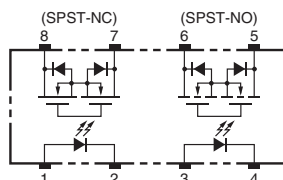


Note: The actual product is marked differently from the image shown here.



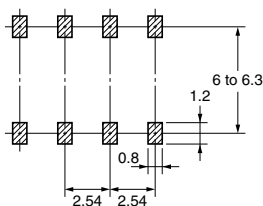
Terminal Arrangement/Internal Connections (Top View)

G3VM-355J/JR



Actual Mounting Pad Dimensions (Recommended Value, Top View)

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■ 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 μ 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	Typi- cal	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	μA	$V_R = 5 \text{ V}$
	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)	Ω	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	μA	$V_{OFF} = 350 \text{ V}$
	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

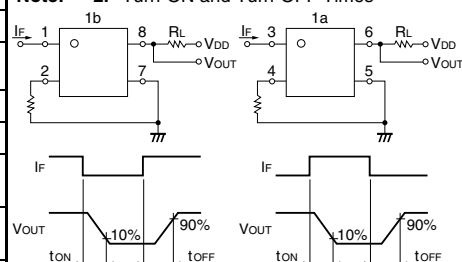
■ Recommended Operating Conditions

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

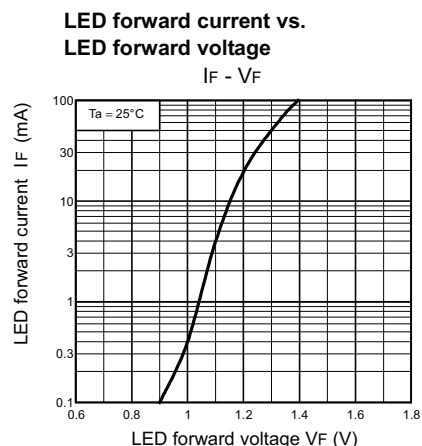
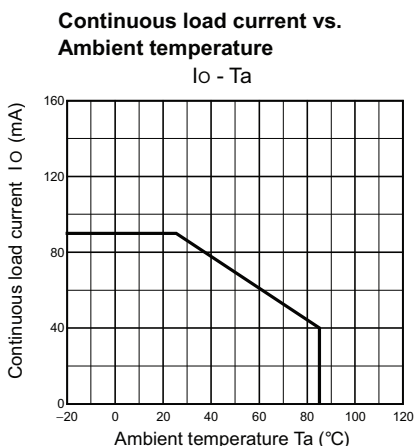
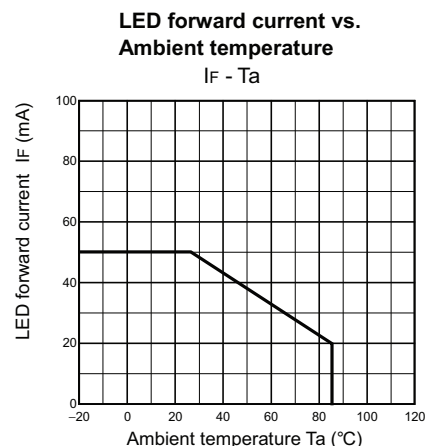
Note: 2. Turn-ON and Turn-OFF Times



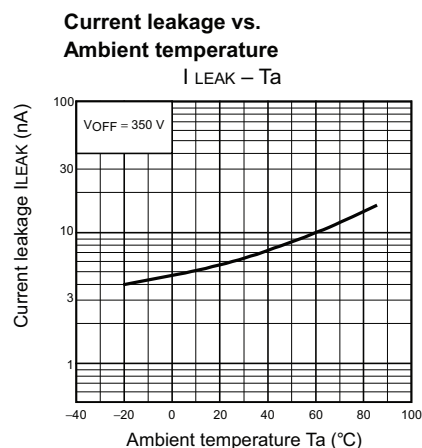
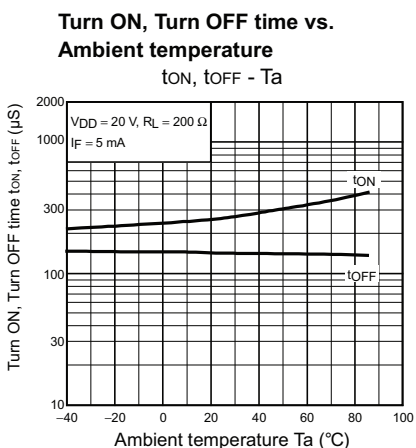
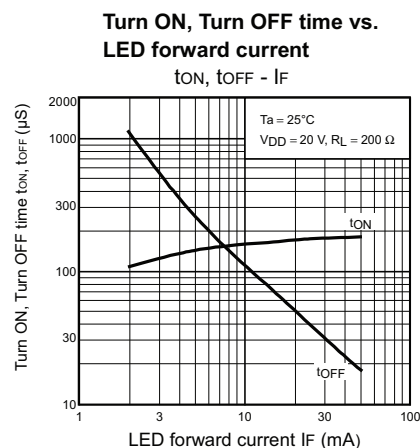
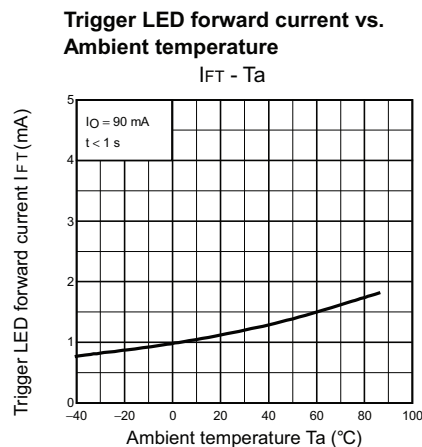
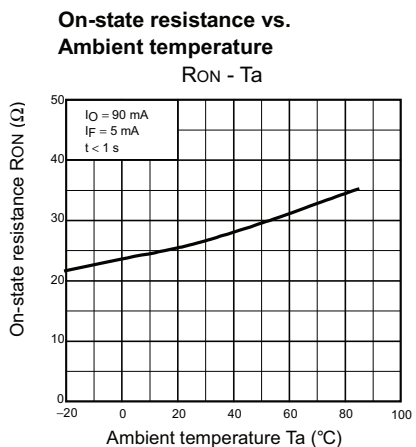
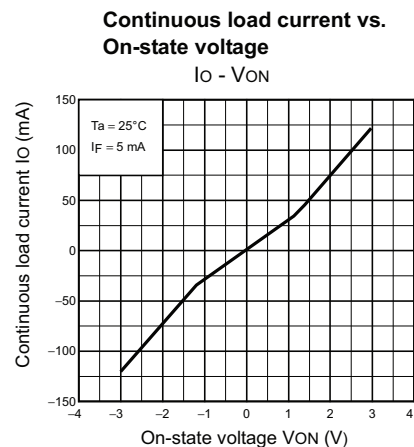
■ Engineering Data

G3VM-355J

Common Characteristics; SPST-NO / SPST-NC

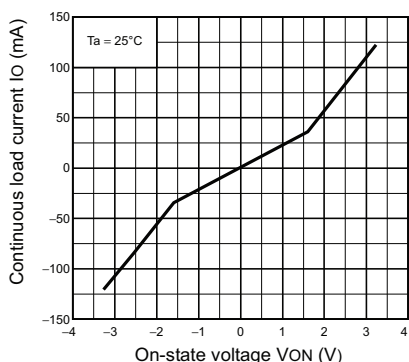


Characteristics; SPST-NO

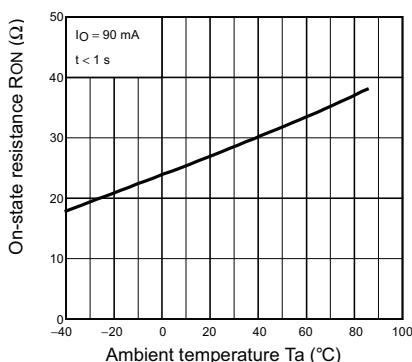


■ Engineering Data
G3VM-355J (continued)
 Characteristics; SPST-NC

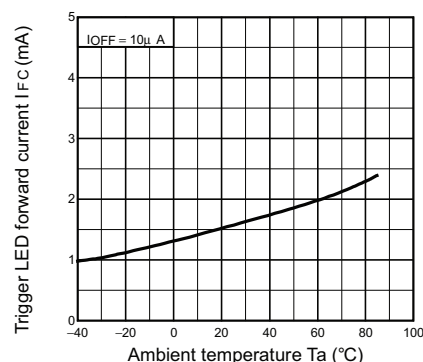
Continuous load current vs. On-state voltage
 $I_O - V_{ON}$



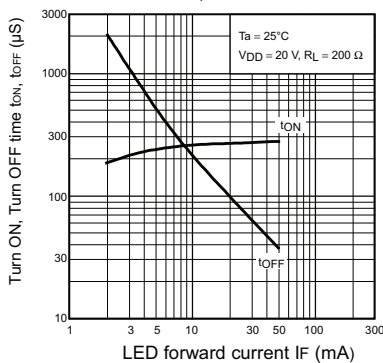
On-state resistance vs. Ambient temperature
 $R_{ON} - T_a$



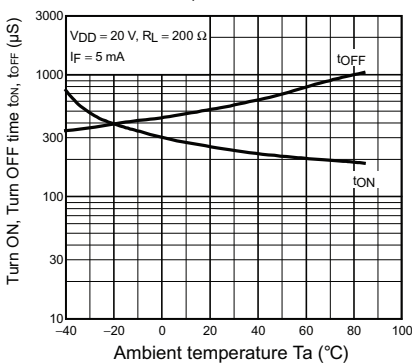
Trigger LED forward current vs. Ambient temperature
 $I_{FC} - T_a$



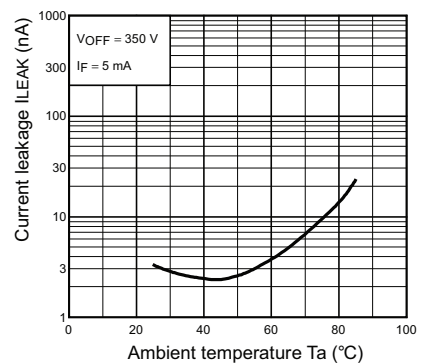
Turn ON, Turn OFF time vs. LED forward current
 $t_{ON}, t_{OFF} - I_F$



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



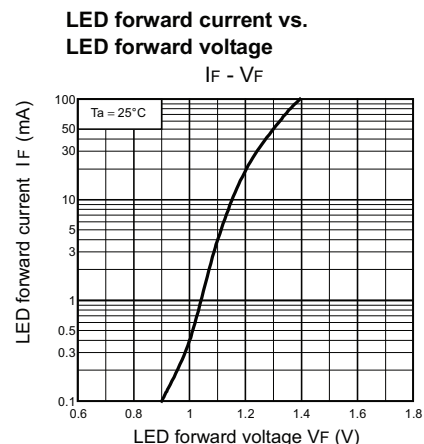
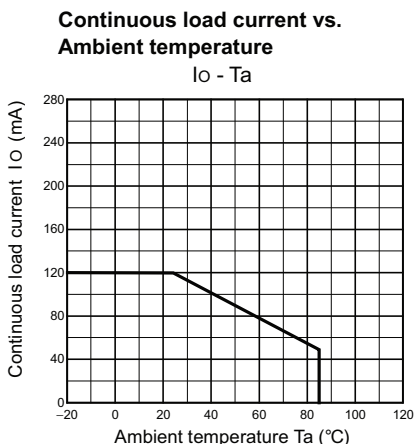
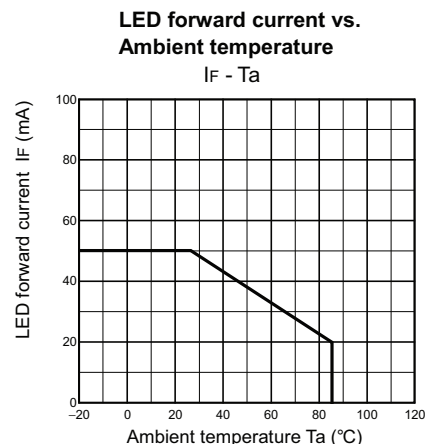
Current leakage vs. Ambient temperature
 $I_{LEAK} - T_a$



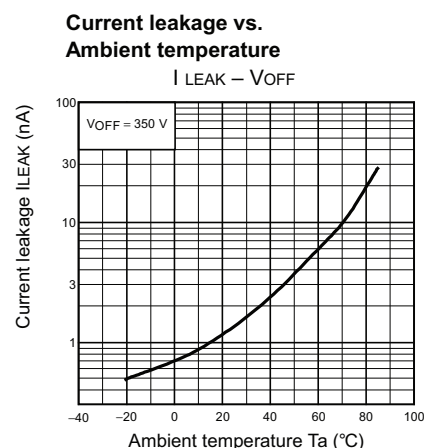
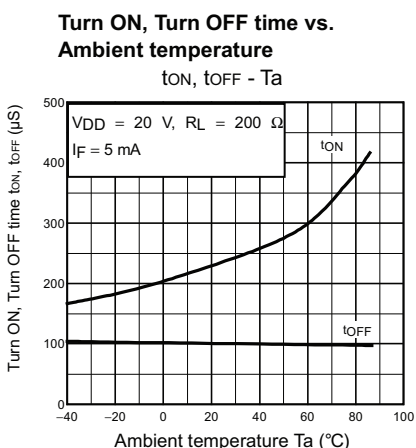
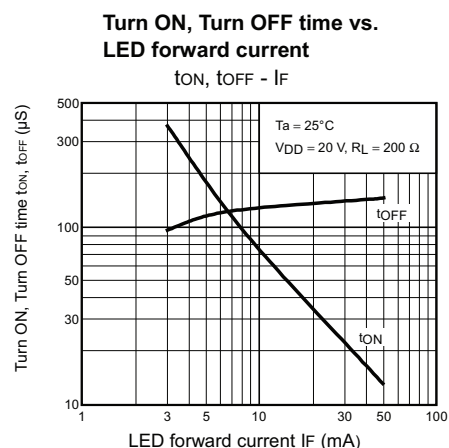
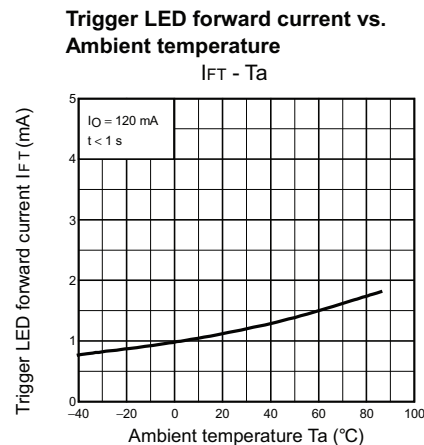
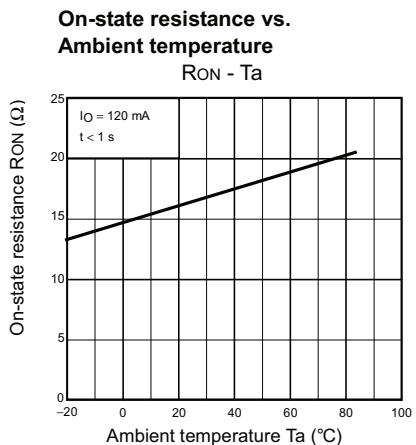
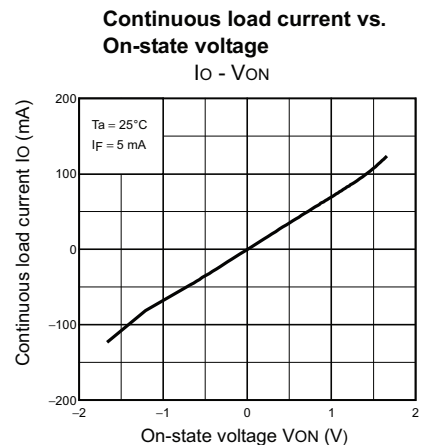
■ Engineering Data

G3VM-355JR

Common Characteristics; SPST-NO / SPST-NC

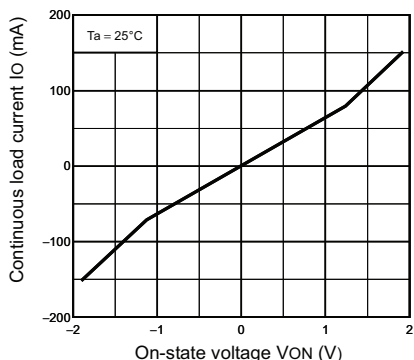


Characteristics; SPST-NO

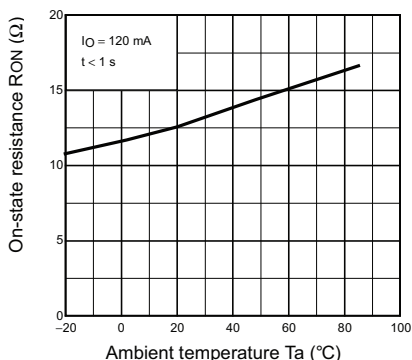


■ Engineering Data
G3VM-355JR (continued)
 Characteristics; SPST-NC

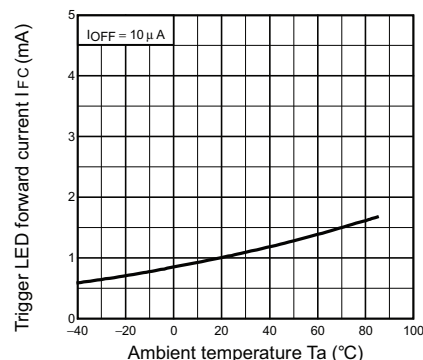
Continuous load current vs. On-state voltage
 $I_O - V_{ON}$



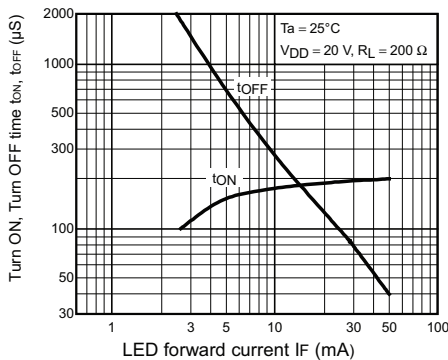
On-state resistance vs. Ambient temperature
 $R_{ON} - T_a$



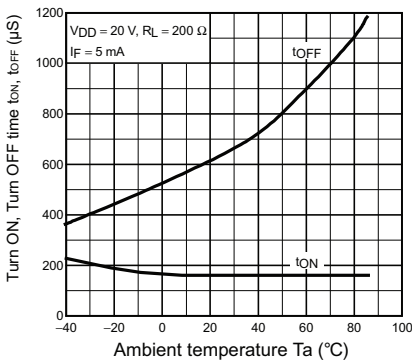
Trigger LED forward current vs. Ambient temperature
 $I_{FC} - T_a$



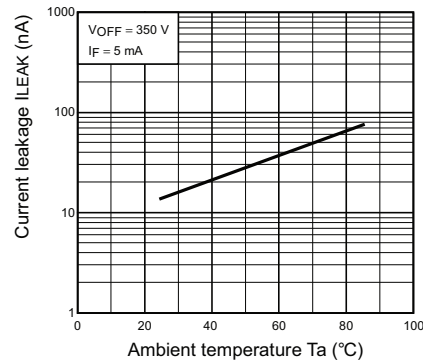
Turn ON, Turn OFF time vs. LED forward current
 $t_{ON}, t_{OFF} - I_F$



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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