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Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (\_), the underscore (\_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (\_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at [www.onsemi.com](http://www.onsemi.com). Please email any questions regarding the system integration to [Fairchild\\_questions@onsemi.com](mailto:Fairchild_questions@onsemi.com).

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**Absolute Maximum Ratings** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended.



## Electrical Characteristics (T<sub>A</sub> = 25°C unless otherwise specified)

### Input Characteristics

Symbol	Parameter	Test Conditions	Device	Min.	Typ.	Max.	Unit
V <sub>F</sub>	LED Forward Voltage	I <sub>LED</sub> = 1mA, V <sub>COMP</sub> = V <sub>FB</sub> (Fig. 1)	All		1.07	1.2	V
V <sub>REF</sub>	Reference Voltage	I <sub>LED</sub> = 1mA, V <sub>COMP</sub> = V <sub>FB</sub>	FOD2743A	2.482	2.495	2.508	V
			FOD2743B	2.470	2.495	2.520	V
			FOD2743C	2.450	2.500	2.550	V
V <sub>REF (DEV)</sub> <sup>(2)</sup>	Deviation of V <sub>REF</sub> Over Temperature <sup>(2)</sup>	T <sub>A</sub> = -25°C to +85°C	All		4.5	17	mV
ΔV							

### Output Characteristics

### Transfer Characteristics

#### Notes:

2. The deviation parameters V<sub>REF(DEV)</sub> and I<sub>REF(DEV)</sub> are defined as the differences between the maximum and minimum values obtained over the rated temperature range. The average full-range temperature coefficient of the reference input voltage, ΔV<sub>REF</sub>, is defined as:

where ΔT<sub>A</sub> is the rated operating free-air temperature range of the device.

3. The dynamic impedance is defined as |Z<sub>OUT</sub>| = ΔV<sub>COMP</sub>/ΔI<sub>LED</sub>. When the device is operating with two external resistors (see Figure 2), the total dynamic impedance of the circuit is given by:

**Electrical Characteristics** (Continued) ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

**Isolation Characteristics**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{I-O}$	Input-Output Insulation Leakage Current	$RH = 45\%$ , $T_A = 25^\circ\text{C}$ , $t = 5\text{s}$ , $V_{I-O} = 3000\text{ VDC}^{(4)}$			1.0	$\mu\text{A}$
$V_{ISO}$	Withstand Insulation Voltage	$RH \leq 50\%$ , $T_A = 25^\circ\text{C}$ , $t = 1\text{ min.}^{(4)}$	5000			$V_{rms}$
$R_{I-O}$	Resistance (Input to Output)	$V_{I-O} = 500\text{ VDC}^{(4)}$		$10^{12}$		$\Omega$

**Switching Characteristics**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
BW	Bandwidth	(Fig. 7)		50		kHZ

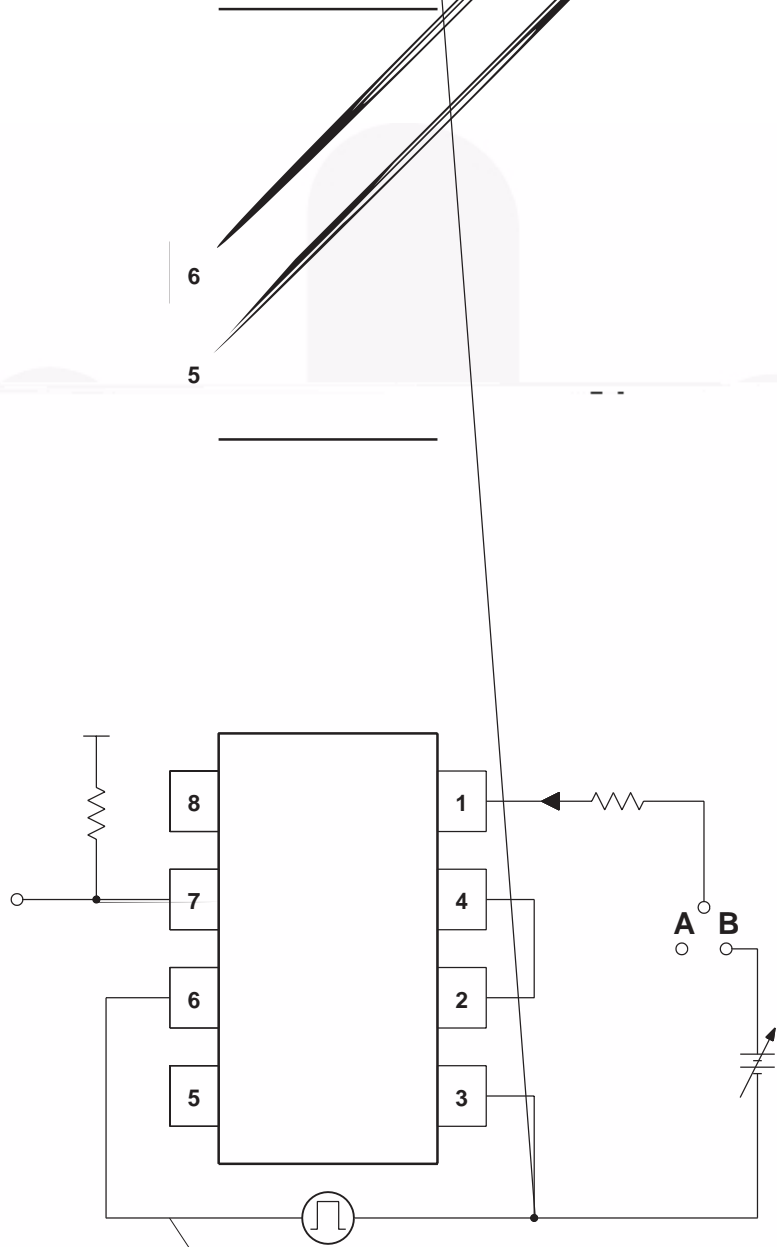
**Notes:**

- Device is considered as a two terminal device: Pins 1,2, 3 and 4 are shorted together and Pins 5, 6, 7 and 8 are shorted together.
- Common mode transient immunity at output high is the maximum tolerable (positive)  $dV_{cm}/dt$  on the leading edge of the common mode impulse signal,  $V_{cm}$ , to assure that the output will remain high. Common mode transient immunity at output low is the maximum tolerable (negative)  $dV_{cm}/dt$  on the trailing edge of the common pulse signal,  $V_{cm}$ , to assure that the output will remain low.

### Test Circuits



Test Circuits (Continued)





## Typical Performance Curves

Fig. 9a – LED Current vs. Cathode Voltage

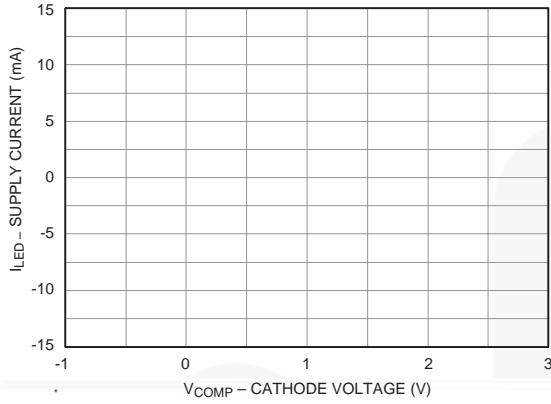


Fig. 9b – LED Current vs. Cathode Voltage

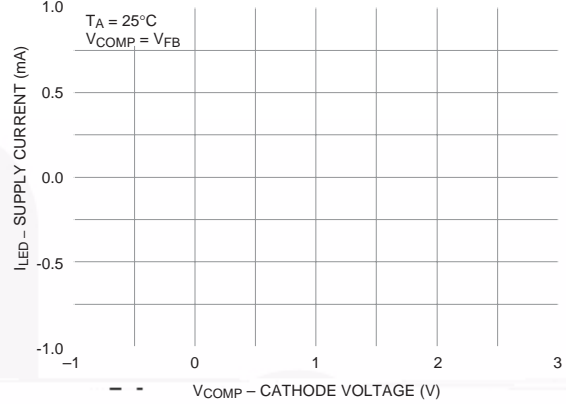


Fig. 10 – Reference Voltage Variation vs. Ambient Temperature

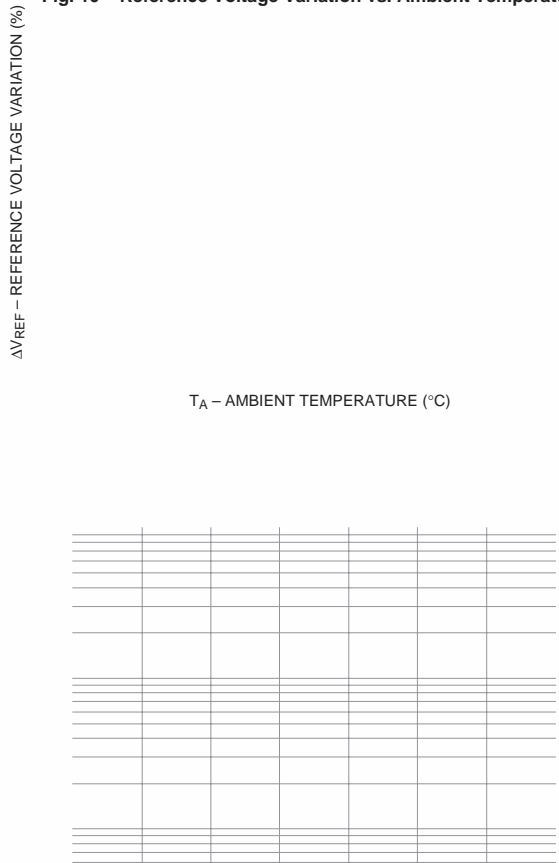
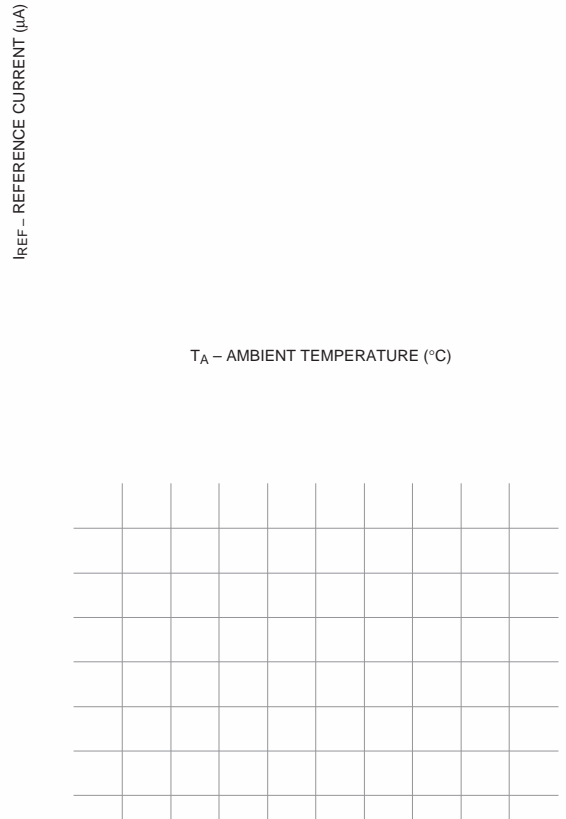


Fig. 11 – Reference Current vs Ambient Temperature



Typical Performance Curves (Continued)

Fig. 14 – Dark Current vs. Ambient Temperature

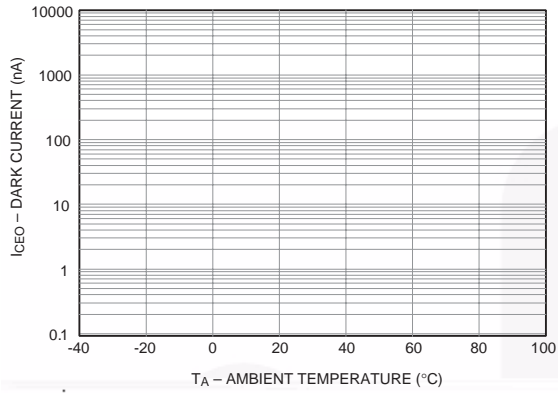


Fig. 15 – Collector Current vs. Ambient Temperature

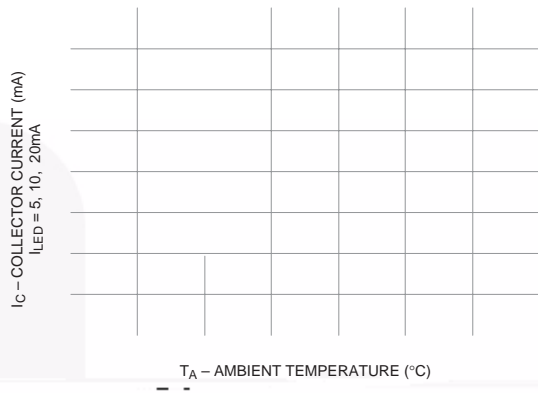


Fig. 16 – Current Transfer Ratio vs. LED Current

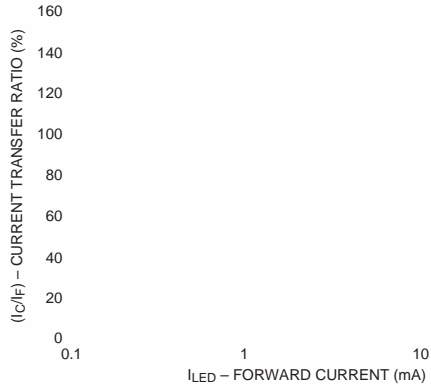
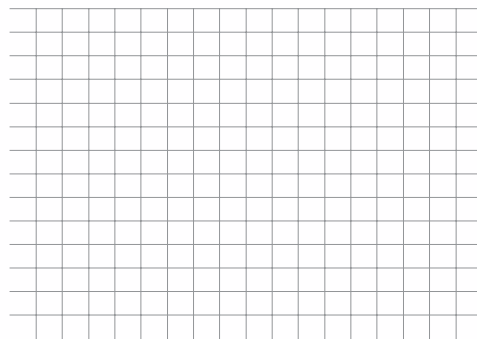
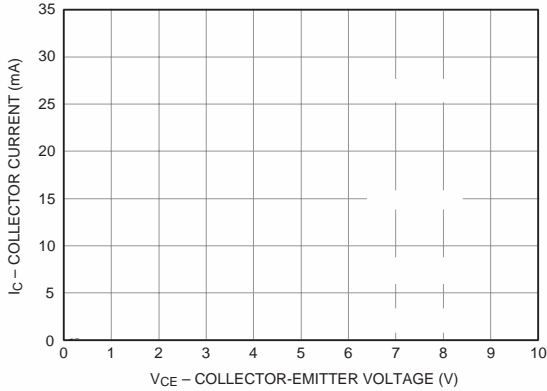


Fig. 18 – Collector Current vs. Collector Voltage



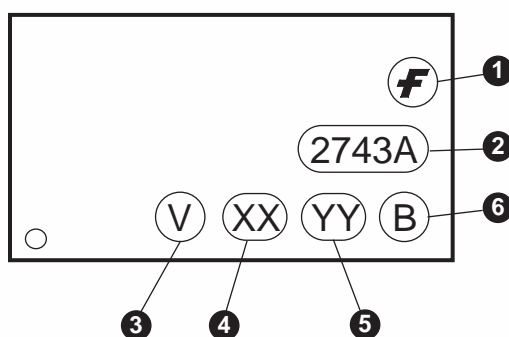




## Ordering Information

Option	Example Part Number	Description
No Option	FOD2743A	Standard Through Hole
S	FOD2743AS	Surface Mount Lead Bend
SD	FOD2743ASD	Surface Mount; Tape and Reel
T	FOD2743AT	0.4" Lead Spacing
V	FOD2743AV	VDE0884
TV	FOD2743ATV	VDE0884; 0.4" Lead Spacing
SV	FOD2743ASV	VDE0884; Surface Mount
SDV	FOD2743ASDV	VDE0884; Surface Mount; Tape and Reel

## Marking Information



Definitions	
1	Fairchild logo
2	Device number
3	VDE mark (Note: Only appears on parts ordered with VDE option – See order entry table)
4	Two digit year code, e.g., '03'
5	Two digit work week ranging from '01' to '53'
6	Assembly package code





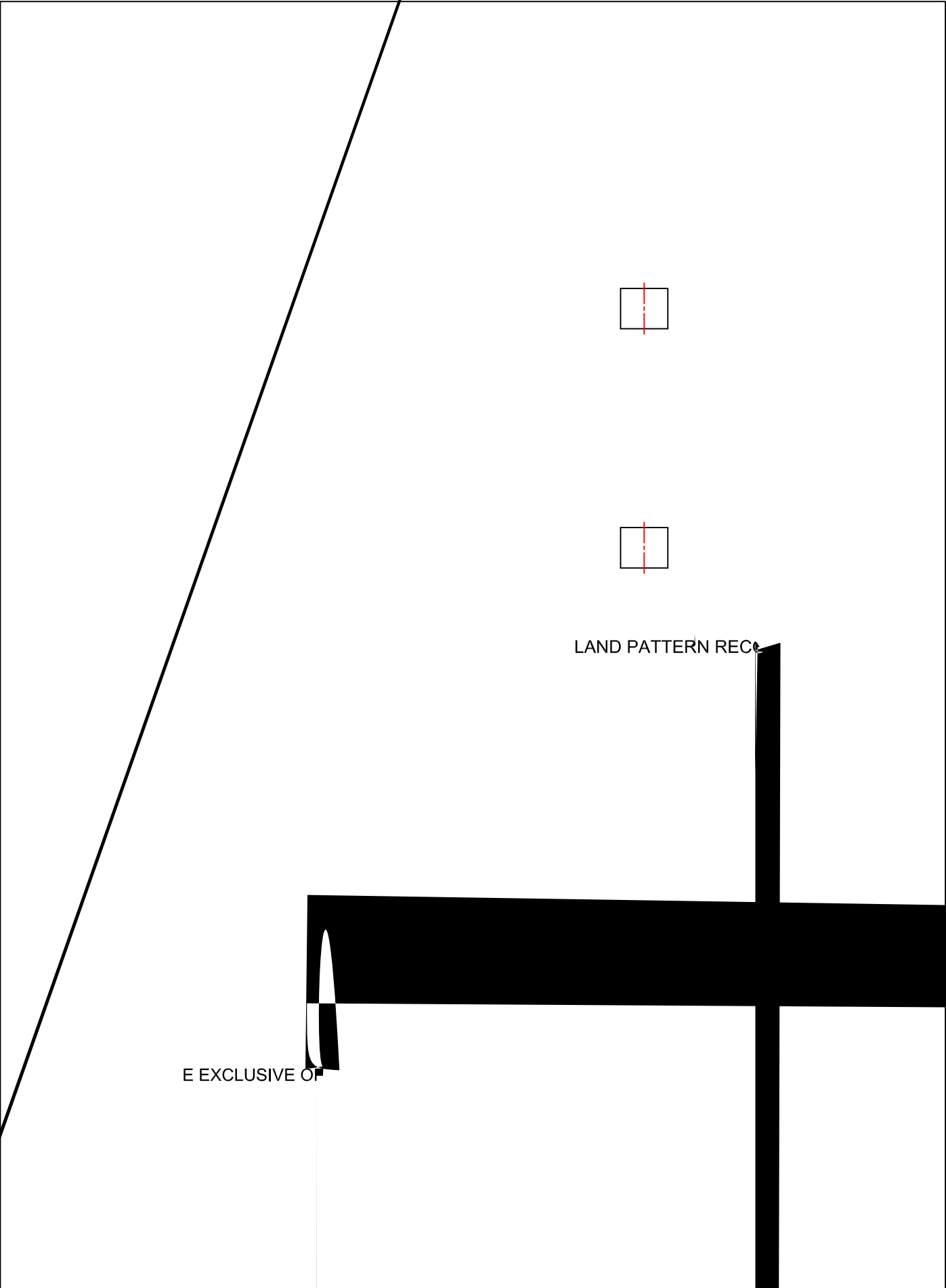
NOTES:

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DIMENSIONS

SIZE OF BURRS,  
MOLD FLASH, AND TIE BAR EX





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NOTES:

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